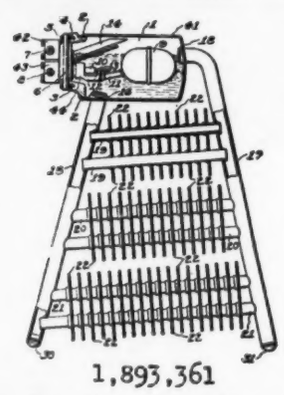
PATENTS

ISSUED JANUARY 3, 1933

(Continued from Last Issue)

1,893,361. EVAPORATOR. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed Sept. 5, 1930. Serial No. 479,951. 2 Claims. (Cl. 62—95.)

1. A cooling unit for refrigerating apparatus comprising a horizontally disposed header member, refrigerant conveying



1,893,361

means depending from said header and comprising a plurality of pairs of conduits, each pair diverging angularly from the header so that their lower extremities project beyond the ends of the header, means for closing the lower end of each conduit, a plurality of superposed pairs of horizontally inclined conduits connecting said refrigerant conveying means, and a plurality of heat conducting fins disposed substantially perpendicularly to each set of pairs of horizontally inclined conduits, whereby to provide a plurality of superposed banks of finned conduits disposed below said header and collectively providing the greater portion of the surface of said cooling unit.

1,893,378. COOLING UNIT. George L. Spring, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed Aug. 14, 1930. Serial No. 475,246. 2 Claims. (Cl. 62—95.)

1. In a mechanical cooling unit the combination with a horizontally disposed cylindrical refrigerant vaporizer of a heat transfer unit comprising a sheet metal receptacle adapted to contain a freezing tray and positioned beneath the vaporizer, and a strip of sheet metal partially encircling the vaporizer and secured to the sheet metal receptacle, whereby the latter is supported by the vaporizer, the lateral edge of the strip being bent to form fins projecting into the medium surrounding the vaporizer.

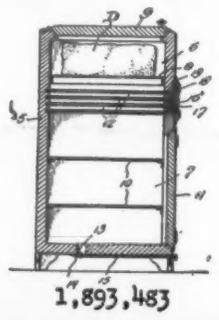
1,893,478. REFRIGERATING APPARATUS. Thomas C. Whitehead and Harold A. Greenwald, Detroit, Mich., assignors, by direct and mesne assignments, to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed June 22, 1931. Serial No. 546,090. 2 Claims. (Cl. 62—116.)

1. In a refrigerating apparatus, a relatively low flat topped refrigerator cabinet having an opening in its front vertical wall, a closure for said opening, a vertical insulating partition parallel to the front wall and dividing the cabinet into a food storage compartment located in front of said partition and a machine compartment located in back of said partition, refrigerating machinery supported by said partition with its heat absorbing portion in the food compartment and its heat dissipating portion in the machine compartment, said cabinet being provided with an opening in its top wall for permitting access to a third compartment located in the rear of the food storage compartment and communicating therewith, and being further located at one side of and inculated from the machine compartment.

ISSUED JANUARY 10, 1933

1,893,483. REFRIGERATING APPARATUS AND METHOD. Joseph S. Belt, Amarillo, Tex. Filed Jan. 5, 1931. Serial No. 506,806. 10 Claims. (Cl. 62—91.5.)

1. In a refrigerating apparatus, an insulating receptacle and heat insulating means of adjustable effective thickness



1,893,483

dividing said receptacle into an upper chamber for reception of solid carbon dioxide and a lower chamber for reception of material or articles to be refrigerated, said insulating means being of material slightly pervious to the gas evolved by sublimation of the solid carbon dioxide.

1,893,484. HEAT EXCHANGER. Joseph S. Belt, Amarillo, Tex. Filed July 26, 1932. Serial No. 624,836. 5 Claims. (Cl. 257—235.)

1. A heat exchanger including a casing composed of a body and removable end closure plates, said body having a spiral vane on the inner surface thereof, said casing having an inlet at one end and an outlet at the other end for a cooling or heating medium, and a coil removably arranged axially of the casing wholly within the confines of said vane and having inlet and outlet ends passing through said end closure plates to facilitate flow of a liquid to be cooled or heated therethrough countercurrent to the flow of the cooling or heating medium through the casing.

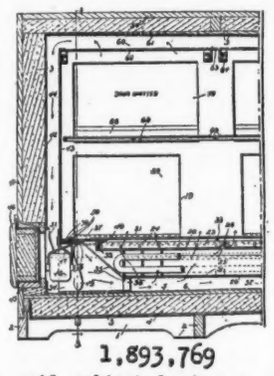
1,893,513. METHOD AND MEANS FOR MAKING A COATED FROZEN CONFECTION. Abraham Balian, Los Angeles, Calif. Filed April 11, 1932. Serial No. 604,464. 4 Claims. (Cl. 107—19.)

1,893,535. ICE CUBE PAN LIFTER. Michael Kerin Buchanan, Ocean View, Va. Filed Sept. 28, 1929. Serial No. 395,927. 20 Claims. (Cl. 62—108.5.)

1. In an ice cube pan for mechanical refrigerators, means when operated for causing breaking of the frozen connection between the pan and its support, said means including means for breaking the frozen connection between the cubes and the pan.

1,893,769. REFRIGERATOR. George E. Friedrich, San Antonio, Tex., assignor to Edward Friedrich, San Antonio, Tex. Filed April 8, 1932. Serial No. 604,092. 28 Claims. (Cl. 62—89.5.)

1. In a refrigerator, a cabinet having a food compartment extending substantially the full length, depth, and height of the



1,893,769

cabinet, said cabinet having a recessed bottom and a recessed top, air ducts extending from end to end of said cabinet and located in the recesses of the top and bottom, a down-air duct located at one end of the cabinet and connecting the top and bottom ducts, a fan housing in the bottom of the cabinet with which said down-air duct and said bottom duct communicate, a fan in said fan housing, said top and bottom ducts having their opposing faces perforated, a food shelf supported in said cabinet adjacent the recessed bottom and over the lower air duct, and cooling means located between said shelf and the lower air duct.

1,893,805. REFRIGERATOR CABINET. Lee B. Morrison, Portland, Ore. Filed May 11, 1931. Serial No. 536,464. 4 Claims. (Cl. 312—184.)

1. A cabinet, a drawer of substantially the same width as the chamber in said cabinet normally housed therein, and a device extensibly supporting said drawer in said cabinet comprising, two pairs of pivotally joined links extremities of which pairs are pivotally attached to inner corners of said cabinet and said drawer respectively and means for constraining the links attached to said drawer and the links attached to said inner cabinet corners to equi-angular motion respectively.

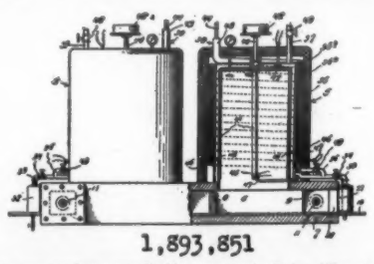
1,893,842. FROZEN FOOD PACKET AND PROCESS OF MANUFACTURING THE SAME. Charles J. Nehf, Castle Shannon, Pa. Filed Nov. 24, 1931. Serial No. 576,964. 6 Claims. (Cl. 99—11.)

1,893,850. APPARATUS FOR PRODUCING SOLID CARBON DIOXIDE. Edward G. Sullivan, Amarillo, Tex., assignor to Joseph S. Belt, Amarillo, Tex. Filed Feb. 17, 1931. Serial No. 516,489. 11 Claims. (Cl. 62—121.)

1. In an apparatus for producing solid carbon dioxide, a converting chamber having a bottom collecting chamber, a press chamber arranged at each side of the collecting chamber and communicating through the side thereof directly with said collecting chamber, and means to feed the snow laterally from the collecting chamber into the respective press chambers.

1,893,851. APPARATUS FOR PRODUCING SOLID CARBON DIOXIDE. Edward G. Sullivan, Amarillo, Tex., assignor to Joseph S. Belt, Amarillo, Tex. Filed Feb. 17, 1931. Serial No. 516,490. 3 Claims. (Cl. 62—121.)

1. In an apparatus for producing solid carbon dioxide, a converting chamber having a bottom snow collecting chamber, a countercurrent heat exchange element coiled about the converting chamber and including an inner conduit terminating in an expansion nozzle arranged to discharge flue gases into the converting chamber, said heat exchange element further includ-



1,893,851

ing an outer conduit connected to the collecting chamber for the escape of nitrogen and unsolidified carbon dioxide gas therethrough from said collecting and converting chambers and means to control the escape of gas from the collecting and converting chambers through said outer conduit.

1,893,852. PROCESS OF AND APPARATUS FOR PRODUCING SOLID CARBON DIOXIDE. Edward G. Sullivan, Amarillo, Tex., assignor to Joseph S. Belt, Amarillo, Tex. Filed Feb. 17, 1931. Serial No. 516,491. 8 Claims. (Cl. 62—121.)

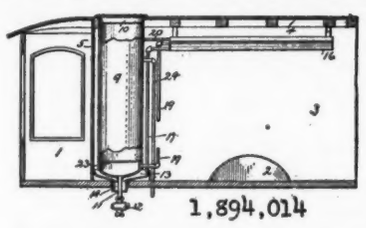
1. The process of making carbon dioxide snow which includes discharging moderately compressed and cooled dried flue gases containing carbon dioxide gas into a converting chamber, and precipitating the carbon dioxide in the form of snow from the flue gases by subjecting the latter to the cooling action of a jet of expanding highly cooled nitrogen.

1,893,854. HUMIDIFIER. Anthony J. Lorenz and Frank E. Hartman, Chicago, Ill., assignors, by direct and mesne assignments, to Biological Engineering Laboratories, Chicago, Ill., a Corporation of Illinois. Filed Feb. 24, 1931. Serial No. 517,714. 6 Claims. (Cl. 261—30.)

1. A portable humidifier comprising a fan, a water reservoir, capillary material panels extending from said reservoir, a housing for said panels and heating means interposed between the fan and the capillary material panels to supply heat to the air streams created by the fan and thereby increase the moisture absorbing capacity of said air before said air reaches said capillary panels.

1,894,014. REFRIGERATING AUTOMOBILE TRUCK. Nickolas Frank Wolf, Evansville, Ind. Filed July 13, 1931. Serial No. 550,604. 4 Claims. (Cl. 62—13.)

1. In a refrigerating automobile truck, the combination with a refrigerating chamber, of an upright refrigerant tank which rises from the lower part of said truck,



1,894,014

a refrigerating coil located in said chamber, said coil being in circuit with the tank, an independent compartment in said truck completely sealed from the refrigerating chamber and accessible from the exterior of the truck, and an internal combustion engine operated pump located in said compartment and in circuit with the coil and accessible independently of said refrigerating chamber.

1,894,085. AIR CONDITIONING AND CIRCULATING DEVICE. Arthur W. Conley, Shaker Heights, Ohio. Filed Aug. 3, 1931. Serial No. 554,651. 4 Claims. (Cl. 261—91.)

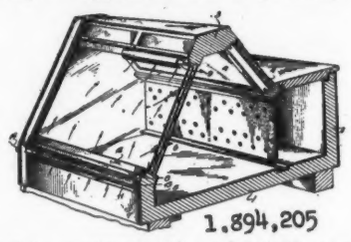
1. In a device of the character described, a receptacle, a fan housing having an open bottom and an upper wall provided with a plurality of louvers, an electric motor supported by said upper wall centrally thereof and having the armature shaft extending vertically downward, a substantially horizontally disposed fan carried by said shaft, a generally flat, horizontally disposed humidifying element comprising inner and outer rings and wicking wound back and forth therebetween supported under said fan, and means for maintaining said element moist.

1,894,127. REFRIGERATING APPARATUS. Warren H. F. Schmieding, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed March 30, 1929. Serial No. 351,445. 6 Claims. (Cl. 62—108.5.)

6. A freezing receptacle for refrigerators comprising a bottom wall, a plurality of walls projecting from the upper and lower sides of the bottom wall to form molds on the upper and lower sides thereof.

1,894,205. MEANS FOR PREVENTING FROSTING OR CONDENSATION OF MOISTURE ON GLASS OR OTHER SURFACES. Frederick J. Stollsteimer, Trenton, N. J., assignor to C. V. Hill & Co., Inc., Trenton, N. J., a Corporation of New Jersey. Filed April 23, 1931. Serial No. 532,308. 8 Claims. (Cl. 20—40.5.)

1. The combination with a transparent panel disposed in an upright position and having its opposite faces respectively ex-



1,894,205

posed to varying inside and outside atmospheric temperatures, of means arranged adjacent to the lower edge of the outer surface of said panel or heating air and directing a stream of the heated air against the outer face of the panel for travel upward over said face of the panel, and means arranged adjacent to the upper edge of the outer surface of the panel for exerting an upward suction pull on said air stream.

TRADEMARK

Ser. No. 331,114. Larkin Refrigerating Corp., Atlanta, Ga. Filed Oct. 10, 1932.

No claim is made to the word "Coils" or the expression "100% Vertical Surface" or

LARKIN COILS

331,114

to the representation of the goods apart from the mark as shown.

For Refrigerating Coils.

Claims use since Sept. 16, 1932.

CLIFFORD MFG. CO. CLAIMS NFRINGEMENT OF PATENTS

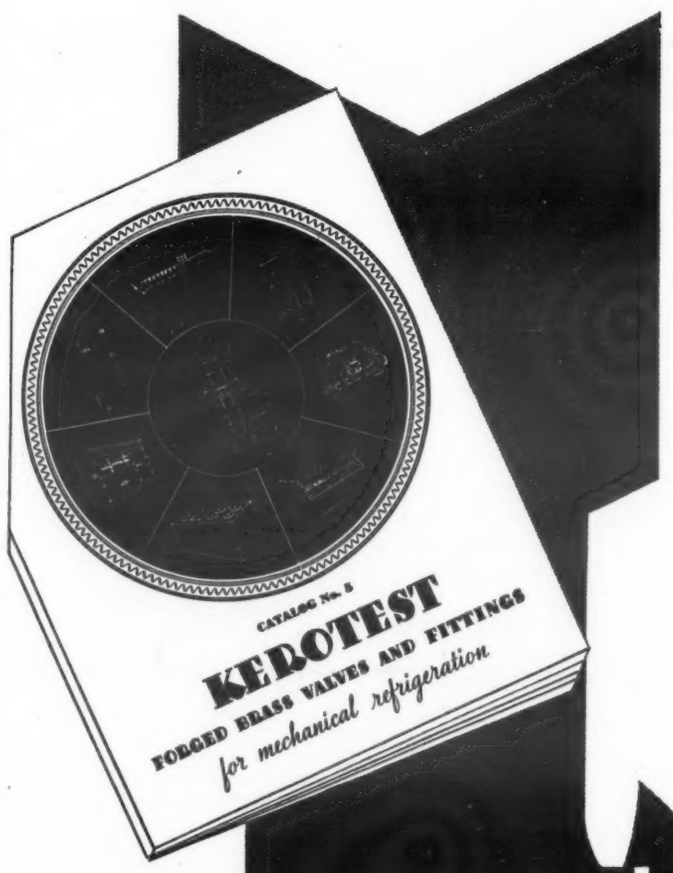
BOSTON—Clifford Mfg. Co. of this city has filed a bill of complaint in the U. S. district court of Connecticut against the Bridgeport Brass Co., Bridgeport, Conn., claiming infringement of several patents owned by Clifford on methods of manufacturing metal bellows. The bill was filed on Nov. 25, 1932, in equity No. 2262.

Infringement is claimed on U. S. patents numbered 1,823,532; 1,689,620; 1,842,148; 1,842,149; 1,848,319; 1,865,673; and 1,880,184, all applied for by Walter B. Clifford, and subsequently issued and assigned to the Clifford Mfg. Co. The patents cover certain methods and improvements in methods for producing metal bellows, and a means of exhausting and sealing bellows.

The bill asks the court to grant an injunction restraining the defendant from further alleged infringement, and requests an accounting for damages.

PATENTS
Searches, Reports, Opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents - Refrigeration Engineer
342 MADISON AVE. NEW YORK

The new **KEROTEST CATALOG**
is out . . . Have you received your copy?



Good valves and fittings are absolutely essential to the safety and efficiency of your refrigerator systems. Their choice and selection, therefore, deserve your most careful consideration.

For your guidance and convenience we have catalogued the complete line of Kerotest quality Refrigerator Valves, Manifolds and Fittings in an informative 48 page catalogue that fully describes the many distinctive features of Kerotest design and construction.

You will find this publication invaluable in selecting the proper Kerotest Valve or fitting for your particular requirements. Just use the coupon if you have not yet received your copy.

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THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

Registered U. S. Patent Office

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ISSUED EVERY WEEK

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DETROIT, MICHIGAN, FEBRUARY 1, 1933

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TEN CENTS PER COPY

THE JOHN CRERAR LIBRARY FEB 4 1933

MAJESTIC USES NEW TYPE WALL STRUCTURE

DISTRIBUTORS TO PLAN G. E. SPRING DRIVE FEB. 15-16

Division Heads to Give Selling Campaign Details

CLEVELAND—Sixth annual winter sales convention of the General Electric Co.'s refrigeration department will be held here Feb. 15 and 16, according to P. B. Zimmerman, manager of the department.

It will include the first convention of the recently organized specialty appliance sales department which was set up under Mr. Zimmerman's management to handle merchandising, advertising and sales promotion, and distribution of G. E. ranges, dishwashers, and the G. E. kitchen.

General Electric distributors from all parts of the United States, Canada, and Hawaii will attend the convention. Distributors' keymen and leading salesmen, and at least 75 executives of leading utility companies also will be

(*Concluded on Page 4, Column 4*)

WILLIAMS DEVELOPS 4-CYLINDER MACHINE

BLOOMINGTON, Ill.—Two new 4-cylinder compressors, model V and W have been added to the line of Ice-O-Matic commercial refrigeration units, according to Stanley Bell, sales manager, refrigeration division, Williams Oil-O-Matic Heating Corp.

The new compressors will find application in large market installations, ice cream freezers, and in air conditioning, Bell believes.

Model V will be powered by a 2-hp. motor, while model W will operate with a 3-hp. motor. Methyl chloride is the refrigerant used.

Motors will be of Williams design and manufacture, and will be similar to those used on the Williams model KB Oil-O-Matics during the past year. The motor is mounted on a sliding base providing automatic belt take-up and proper belt tension.

The 4-cylinder models will be fur-

(*Concluded on Page 12, Column 5*)

DAYTON CONCERN BOUGHT BY HEINZ & MUNSCHAUER

DAYTON—Assets of the Dayton Refrigeration Corp. here, subsidiary of National Pumps Co. and manufacturer of Dayton electric refrigerators, were purchased last week by Heinz & Munschauer, Inc., of Buffalo.

Manufacture of condensing units will be continued in the Dayton plant of National Pumps Co. The units will be shipped to Heinz & Munschauer in Buffalo, where assembly and distribution operations will be conducted.

Heretofore, the Dayton Refrigeration Corp. purchased its cabinets from the Buffalo concern, which has confined its operations to ice box and cabinet manufacture except for a limited time during the past year when it manufactured a small number of Niagara electric refrigerators.

The trade name "Dayton" will be retained for use on the Buffalo company's product, it is reported.

WILLIAMS MADE ASSISTANT TO MAJESTIC PRESIDENT

CHICAGO—LeRoi J. Williams, legal counsel and director of patents for Grigsby-Grunow Co. since 1929, has been appointed assistant to the president of that company, according to B. J. Grigsby, Grigsby-Grunow president and chairman of the board.

In addition to his new duties, Mr. Williams will continue his direction of the company's patent and legal affairs. During the past 20 years, Mr. Williams has worked with Packard Motor Car Co., Cadillac Motor Car Co., General Motors Co., Lincoln Motor Car Co., and Westinghouse Electric & Mfg. Co.

Research Work in Air Conditioning Reported

By John T. Schaefer

CINCINNATI—Results of research projects conducted during the past year in comfort cooling, house heating, and specific phases of ventilation and air conditioning were reported by speakers at the thirty-ninth annual meeting of the American Society of Heating and Ventilating Engineers, Monday, Tuesday, and Wednesday of last week.

Of special interest to designers and installers of air-conditioning equipment were papers on special problems such as corrosion; air infiltration through steel framed windows; air supply, distribution, and exhaust sys-

(*Concluded on Page 10, Column 3*)

DEALERS TO COMPETE FOR RADIO PRIZES

EAST PITTSBURGH, Pa.—A radio program, featuring a serial, mystery drama by Octavus Roy Cohen, and tying in with nine major contests, is part of the advertising program for 1933 planned by the Westinghouse Electric & Mfg. Co., according to Ralph Leavenworth, general advertising manager.

Beginning Feb. 14, the program will be broadcast from coast to coast over the NBC network every Tuesday, Thursday, and Saturday.

The drama, called the "Townsend Murder Mystery," will feature the famous detective character, Jim Hanvey,

(*Concluded on Page 4, Column 5*)

Features of Coming Issues

Feb. 22—New Equipment Number—Descriptions and illustrations of all new 1933 models and cabinet styles.

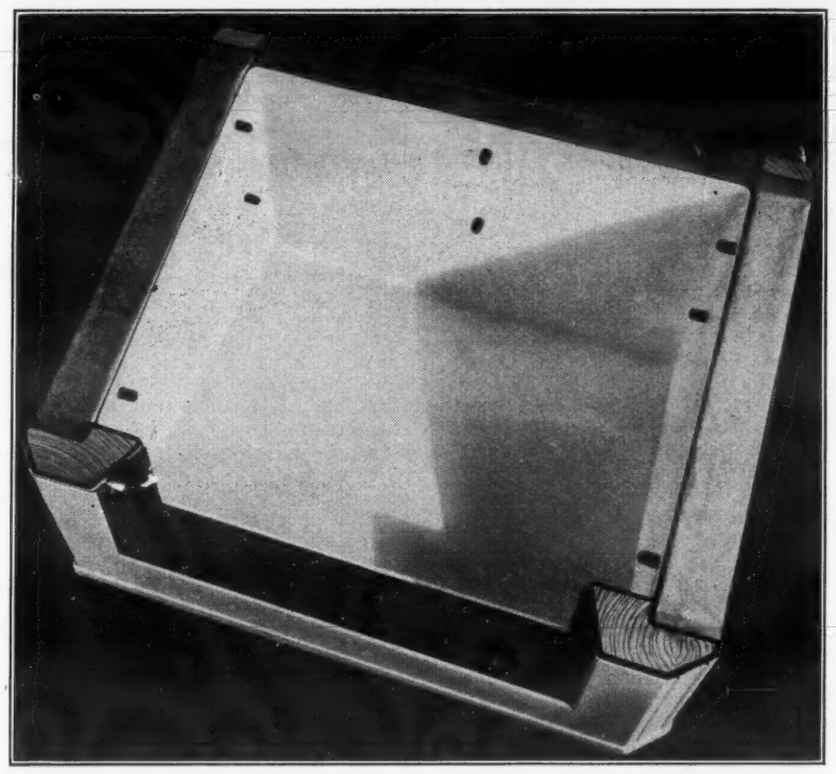
Mar. 8—Department Store Number—News of department store advertising and selling methods.

Mar. 22—Specifications Number—A new tabulation of the complete specifications of all models made by all manufacturers.

Apr. 12—Air Conditioning Number—News of recent developments and a complete directory of equipment and manufacturers.

See page 13 for further information.

Isolator Wall Construction



This cutaway illustrates isolation of the exterior from the interior metals of Majestic cabinets, and the new type of asphalt sealing.

Eastern, Southern Distributors Attend Gibson Convention

NEW YORK CITY—Representatives of 14 eastern and southern distributorships of the Gibson Electric Refrigerator Corp. gathered for a one-day meeting on Jan. 25 at the Ambassador hotel here, where Gibson officials presented the 1933 refrigerator line, and outlined sales plans for the coming season.

At the close of the meeting, the distributors placed orders for 20 carloads of the new Gibsons, according to W. R. Marshall, advertising and sales promotion manager.

Herb Young, eastern sales manager, was in charge of the meeting. Elmer Born, Gibson national service manager, gave a detailed explanation of the new line's mechanical features. Mr. Marshall discussed 1933 advertising and sales promotion plans.

Also present at the meeting were C. J. Gibson, president of the company, and P. W. Peck, southern district manager.

Following are the names of men present and the distributorships they represented:

E. A. Terhune, Appliance Engineering Corp., Boston; L. C. Kerrick, Brandeis Machinery & Supply Co., Louisville; Jerome Harris, Harry Glasser, and Irving Sarnoff of the New York distributing organization; Louis Buehn, Louis Buehn, Jr., L. E. Ander-

(*Concluded on Page 4, Column 5*)

52448

copies of Electric Refrigeration News were purchased during January. The average paid circulation for the first four issues of 1933 was

13112

Demand for extra copies made it necessary to put two issues back on the press for second runs.

1ST PRIZE WINNER IN BUREAU CONTEST

YOU WILL PAY THROUGH ONE WINTER NO MATTER WHEN YOU BUY
NOV. DEC. JAN. FEB.
OCT. NOV. DEC. JAN. FEB. MARCH APRIL
IF YOU BUY IN APRIL
YOU PAY THROUGH ONE WINTER
BUY NOW FOR XMAS
6 MONTHS OR LONGER TO PAY
YOU PAY THROUGH ONE WINTER
IF YOU BUY IN DEC.
THE BEST IS NONE TOO GOOD FOR A Gift TO THE QUEEN OF THE HOME

With the above novel window display (featuring a Frigidaire) the Consumers Power Co. of Jackson, Mich., won the grand prize of $100 for the most meritorious display in any class in the national Christmas window display contest sponsored by the Electric Refrigeration Bureau. Other prize-winning displays are shown on pages 8 and 9.

MODELS EMPLOY DEFROSTER AND NEW PROTECTER

5 Electro-Sealed Units, 1 Conventional, In 1933 Line

CHICAGO—With only one model of conventional design (priced at $104 f.o.b. Chicago) in its new line of Majestic refrigerators, Grigsby-Grunow Co. will make its bid for the market in 1933 with six models featuring "Isolator Wall" construction, an "Auto-Reset" protector, and "Stay-Kold" defroster.

Electro-Sealed (hermetic) units will be used in the five models of the deluxe line. "Isolator Wall" construction, according to R. C. Haimbaugh, chief engineer of the refrigeration division, seals the cabinet against moisture, and minimizes heat leakage.

Three types of insulation are used in each cabinet, each type being selected for its insulating value, rigidity, structural strength, and weight as required in various portions of the cabinet.

Cabinet walls are sealed, according to Mr. Haimbaugh, with five sealing materials, each of which is considered best suited for a particular part of the box.

Number of joints has been reduced

(*Concluded on Page 13, Column 1*)

DETROIT ENGINEERS DISCUSS STANDARDS

DETROIT—Performance standards for both domestic and commercial refrigerators were outlined by four engineers from four different refrigerator manufacturers last Monday night at the January meeting of the Detroit section, American Society of Refrigerating Engineers.

As chairman of the meeting, John Wyllie, commercial engineer for Kelvinator Corp., stressed the need for standards by which performance can be rated. The main problem in the early days of refrigeration was to design, build, and install refrigerators that "would work," little attention being given to any method of measuring the performance with a standard. Now that reliability and efficiency have been attained, the engineers should develop a standard basis for measuring performance, he pointed out.

A committee of one of the national associations (Nema) has been working for a year and a half toward the development of a plan for comparative rating of household refrigerators, Mr. Wyllie related, but because of wide differences of opinion and practices,

(*Concluded on Page 13, Column 2*)

NEW YORK A.S.R.E. HEARS PLANT VALUATION TALK

NEW YORK CITY—Marking down plant values on the books can be quite as serious an error as carrying them as too valuable, Lyle H. Olson told the members of the New York section of the American Society of Refrigerating Engineer in their regular January meeting last Thursday.

Mr. Olson, who is vice president of the American Appraisal Co., has been appraising industrial properties for some 30 years; but he claims that the practices of appraising and evaluating plants now are completely different than at any time in his experience.

Mr. Olson, who was introduced by

(*Concluded on Page 11, Column 4*)

HARTEN-KNODEL WINS BLOOD TROPHY FOR 1932 WORK

CINCINNATI—Harten-Knodel Distributing Co., Norge distributor here, has been awarded the President's Trophy Cup by Major Howard E. Blood, president of Norge Corp., for "the most outstanding sales job done by any Norge distributorship in 1932."

BY GEORGE F. TAUBENECK - - -

The Last Chapter

With this issue we present the last instalment of our historical resume of the year 1932 in the refrigeration industry.

Readers who wish to get the complete story of 1933 will find it told—somewhat sketchily, to be sure—on page 2 of the Jan. 11, 18, 25, and Feb. 1 issues.

The more personal, human type of material which used to characterize "The Expansion Valve" will be resumed in the next issue.

* * *

Sales Contests

As in 1931, sales contests sponsored by large refrigeration manufacturers were many and varied last year. A resume of chief contests follows:

On March 14, the General Electric "Monitor Top War Campaign" was opened by all G. E. refrigerator and range distributors to last until May 31. C. L. McCrea, Washington, D. C., distributor, was winner.

Kelvinator's second annual derby started July 11, ended Sept. 13.

Westinghouse "Lucky 7" salesmen's contest opened on July 7, and closed Aug. 27. The seven winners were:

L. D. PULSIFER, King & Orput, Portland, Ore.; GEORGE SCHULTZ and J. G. LANG, Arthur Lindburg Co., St. Louis; J. F. McDONNELL, Werco, Inc., New Rochelle, N. Y.; P. T. SMERLZER, Treman-King, Inc., Ithaca, N. Y.; R. H. PURLICHER, E. S. Stophlet, Madison, Wis.; and L. E. GRAY, Modern Home Appliance Co., Birmingham, Ala.

General Electric staged its annual "Monitor Top Election Campaign" during the fall. ALBERT AHRENS, distributor in Oklahoma City, won the title of "President of Refrigerania."

Servel staged a "Forty-Niners' Gold Rush" contest for all salesmen from Sept. 6 to Nov. 1, which was won by S. R. DAWSON, Servel Sales, Inc., New York City.

Other contests held during the year included:

A "Get Your Man" contest for distributors and distributors' salesmen was launched by the Gibson Electric Refrigerator Corp. on July 13 to last until Aug. 27.

Norge Corp. opened its seven-week "Extra Power" contest on July 11. From July 15 to Aug. 31, the Leonard Refrigerator Co. sponsored a "Len-A-Doer" retail sales competition. March 1 opened a two-month Kelvinator commercial sales contest.

A G. E. "National Visualizer Audition Contest" opened in May to promote use of better presentations by General Electric refrigerator salesmen. Westinghouse held a "Trading Post Drive" in the spring, in which W. I. POWELL of San Francisco was winner.

From May 15 to July 15, Kelvinator sponsored a commercial sales contest. RALPH A. DAY of the Detroit factory branch was winner. During August, Frigidaire held a "hidden prospect" contest. A Christmas season retail sales contest was opened by Kelvinator on Nov. 1 to last until Dec. 24.

Leonard salesmen took part in a similar contest from Nov. 1 to Dec. 15. Between Nov. 15 and Dec. 31, Westinghouse salesmen took part in a "Round-up Contest."

* * *

Sales Training

Several manufacturers placed special emphasis on more thorough training of retail salesmen in 1932. Some of the chief sales training projects of the year were these:

Late in '31 and during January of 1932, Frigidaire Corp. showed a series of slide films, designed to train salesmen in Frigidaire construction and sales methods, to more than 7,000 members of its retail sales organization.

Early in the year, Servel Sales, Inc., launched a series of monthly meetings for training distributor and dealer sales forces, conducted by factory officials.

Prior to starting winter sales activities, executives of Frigidaire Corp. made a tour of all sections east of the Rockies, holding round-table conferences with distributors, district managers, sales managers, and supervisors.

In November, Kelvinator Corp. started a correspondence course for training its retail salesmen, and on Nov. 29, Leonard Refrigerator Co. began a series of 15 wholesale field schools to give distributors assistance in securing and training new dealers. Kelvinator salesmen who complete a specified course are awarded a certificate and the degree, D.R.E. (domestic refrigeration engineer).

General Electric continued to press the extensive use of its correspondence course for salesmen.

* * *

Companion Merchandise

Lowered prices, smaller gross profits per unit sale, greatly augmented numbers of competitors, and a decrease in unit sales in 1932 forced electric refrigeration distributors and dealers to look around for lines of companion merchandise which they might add to refrigeration in order to rebuild dollar volume.

Until the past couple of years leaders in the electric refrigeration industry have frequently insisted that franchises be granted only to distributors and dealers who were willing to concentrate on one specialty product—or one product in addition to radio. In 1932, however, that attitude went by the boards.

The addition of lines of companion merchandise is no longer a question of simply straightening out a peak-and-valley seasonal sales curve. Rather, it is the only hope of survival for hundreds of refrigeration distributors and dealers.

It probably is true that refrigeration sales organizations represent the highest degree of perfection in the use of specialty selling methods the nation has yet seen. But present-day conditions demand that they have more products to sell.

Probably the products most susceptible to their manner of promotion are specialty and semi-specialty products for the home.

Room coolers, radios, oil burners, coal stokers, gas heaters, electric ranges, all-electric kitchens, laundry equipment, electric sewing machines, water heaters, water softeners, and home entertainment devices are among the possibilities.

Traffic appliances, such as lamps, irons, toasters, percolators, curlers, food mixers, fans, and other "chewing gum items" have also been added with success by electric refrigeration organizations.

Conversion of electric refrigeration sales organizations into specialty appliance merchandisers shows signs of moving in three different directions.

First movement is that of taking on all the products made by one manufacturer, which is true especially of General Electric and Westinghouse franchises.

Both of these manufacturers have ultra-complete lines of electric appliances to offer dealers. So does Apex.

Radio-refrigeration manufacturers (Majestic, Crosley, Sparton, All-American Mohawk, Stewart-Warner, Fada, U. S., Clago), of course, expect most of their dealers to handle both lines.

Second movement is toward kitchen appliances and the all-electric kitchen.

The latter idea, which embraces the sale of a refrigerator, range, dishwasher, food mixer, clock, fan, toaster, and possibly a midget radio—all at one time and as a unit—appeals especially to metropolitan distributors who deal with builders and apartment house operators.

Distributors and dealers in smaller cities, too, find that while the sale of an all-electric kitchen as a unit may be difficult, there are many users of electric refrigerators to whom they can go back with a range or dishwasher and get a ready reception.

General Electric and Westinghouse have been particularly active in attempting to promote the sale of kitchen appliances by planning and demonstrating all-electric kitchens.

The General Electric Kitchen Institute will supply to any individual, free of charge, complete plans for remodeling and refurnishing old kitchens, or for building and furnishing new ones.

Recently, the General Electric Co. established a specialty appliances sales department for the distribution and sale of General Electric ranges, G. E. dishwashers, and G. E. kitchens.

* * *

Human Comfort Devices

Third movement is in the direction of human comfort. This, of course, implies air conditioning. It also means house heating equipment, such as oil burners and coal stokers.

For some time the Williams plant in Bloomington, Ill., has been manufacturing both oil burners and electric refrigerators. Early this year Kelvinator purchased the assets of the Rightway oil burner company, and has recently gone into production with an improved model of this burner which will be sold under the "Kelvinator" trade name.

Delco, a General Motors subsidiary, is making an oil burner. General Electric has brought out an oil-burning furnace.

Although all of these companies think of oil burners as production companions rather than sales companions, it does seem plausible that the two products can be sold by the same merchandising organizations—and a number of the latter are proving it.

The same types of executive management, sales management and sales training, factory representation, sales promotion, display, advertising, and retail salesmanship which are needed to sell electric refrigerators in the spring and early summer, it would appear, can be employed to sell automatic heating equipment in late summer and autumn.

Users of one device are generally prospects for the other. Average retail prices are comparable. Both go into the home, and both provide health insurance. Both are conveniences, and both are sold on the pride-of-ownership appeal.

In the past, oil burners have been sold largely through the heating and ventilating trade. Only plumbers and steamfitters, it was argued, have seemed able to cope with the engineering problems of installing and servicing oil burners.

Recently, however, manufacturers of oil burners have simplified and improved their products considerably. Installation methods are becoming standardized. And in almost every city there are a number of trained oil burner and installation and service men who are easily and quickly available.

No longer does there seem to be reason for delay in merchandising oil burners through specialty dealers.

Furthermore, the time is coming when many electric refrigeration salesmen will have to learn the story of modern heating. For they will have air-conditioning equipment to sell; and heating is just as integral a part of complete air conditioning as is cooling.

While a number of the leading refrigeration companies are experimenting with complete air-conditioning systems or unit coolers, a type of equipment has been put on the market which is more of a home appliance device than it is air-conditioning apparatus.

This piece of equipment is the domestic humidifier. Westinghouse, Crosley, and Domestic Industries have introduced equipment of this type.

* * *

Gas Refrigeration

Gas refrigeration sales have largely been confined to the city of New York, where the Consolidated Gas Co. has been selling thousands upon thousands of Electrolux gas refrigerators for the last three or four years.

Last year Electrolux production (at the plant of the parent company, Servel, Inc., in Evansville, Ind.) was said to be approximately one-tenth of the Nema total.

Up until 1932, very few Electrolux dealers outside of New York City were in the picture. This year the situation has been somewhat different. On the Electrolux roster are about 30 gas utilities (nobody else can sell Electrolux) which are said to be doing a business equivalent to that of the average electric refrigerator distributor.

First direct competitor of Electrolux was announced in January, 1932, but thus far has scarcely been a factor in the business. This gas refrigerator is the Faraday, manufactured by the General Motors Corp. in the Frigidaire plants at Dayton.

Like Electrolux, Faraday will be sold entirely through gas utilities. Unlike Electrolux, Faraday gas refrigerators utilize a solid absorbent, run on an intermittent cycle, and allow remote installations.

* * *

Fight Over F-12 Refrigerant

The much rumored-about new refrigerant, F-12 or "freon" (dichlorodifluoromethane), evolved and sponsored by Frigidaire engineers, and manufactured by Kinetic Chemicals, Inc. (a du Pont plant) was dragged, albeit somewhat unwillingly, into the light this year. It made little headway.

F-12, its sponsors claim, is the safest practical refrigerant available for small refrigerating machines.

For some time they have been working toward revising existing refrigeration codes to exempt F-12 from the restrictions governing other refrigerants.

After considerable debate, it was offered to other responsible electric refrigeration manufacturers. Its price per pound, however, was set at more than the other manufacturers were paying for sulphur dioxide and methyl chloride.

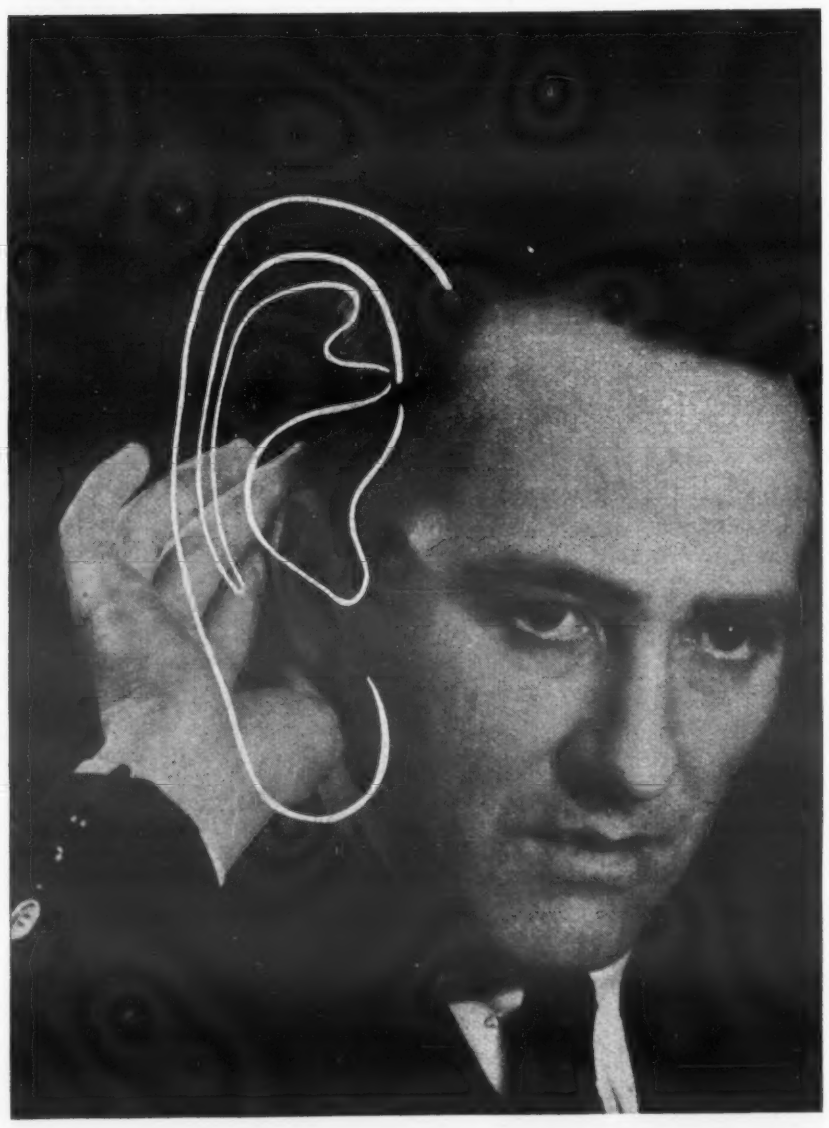
Moreover, adoption of F-12 would make it necessary for all manufacturers to redesign their machines. Hermetically sealed compressors, in particular, could be adapted to this new refrigerant only with difficulty. The other manufacturers balked.

From this balk developed organized opposition to the squads which went out to sell the idea of special code privileges for F-12 to city councilmen, and to the refrigeration code committee of the American Standards Association.

Chemists and engineers working for these other manufacturers discovered that in the presence of a flame F-12

(*Concluded on Page 4, Column 1*)

Hear with your CUSTOMER'S EAR



You'll be impressed to hear: "INSULATED WITH CORKBOARD"

●

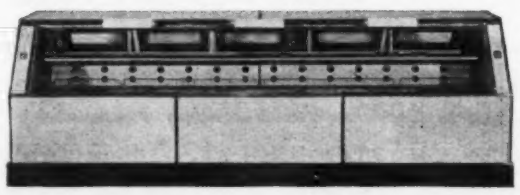
LET'S imagine *you* are a customer in the market for a good refrigerated display case. What will you demand? "I want a refrigerator safe for frozen foods, that can hold low temperatures economically. It *must* be built to last a long time!"

Then—what do you (the customer) hear, as the salesman describes the equipment's features? Listen—he's saying, "This case is insulated with Armstrong's LK Corkboard." And you—like so many others—know corkboard. It is "Nature's own insulation." Surely the case or cabinet insulated this way must be a good one!

* * *

That's how sales are made. With refrigerated equipment it is the unseen things that count. That is why so many manufacturers of display cases and cabinets are helping sales by featuring equipment insulated with corkboard.

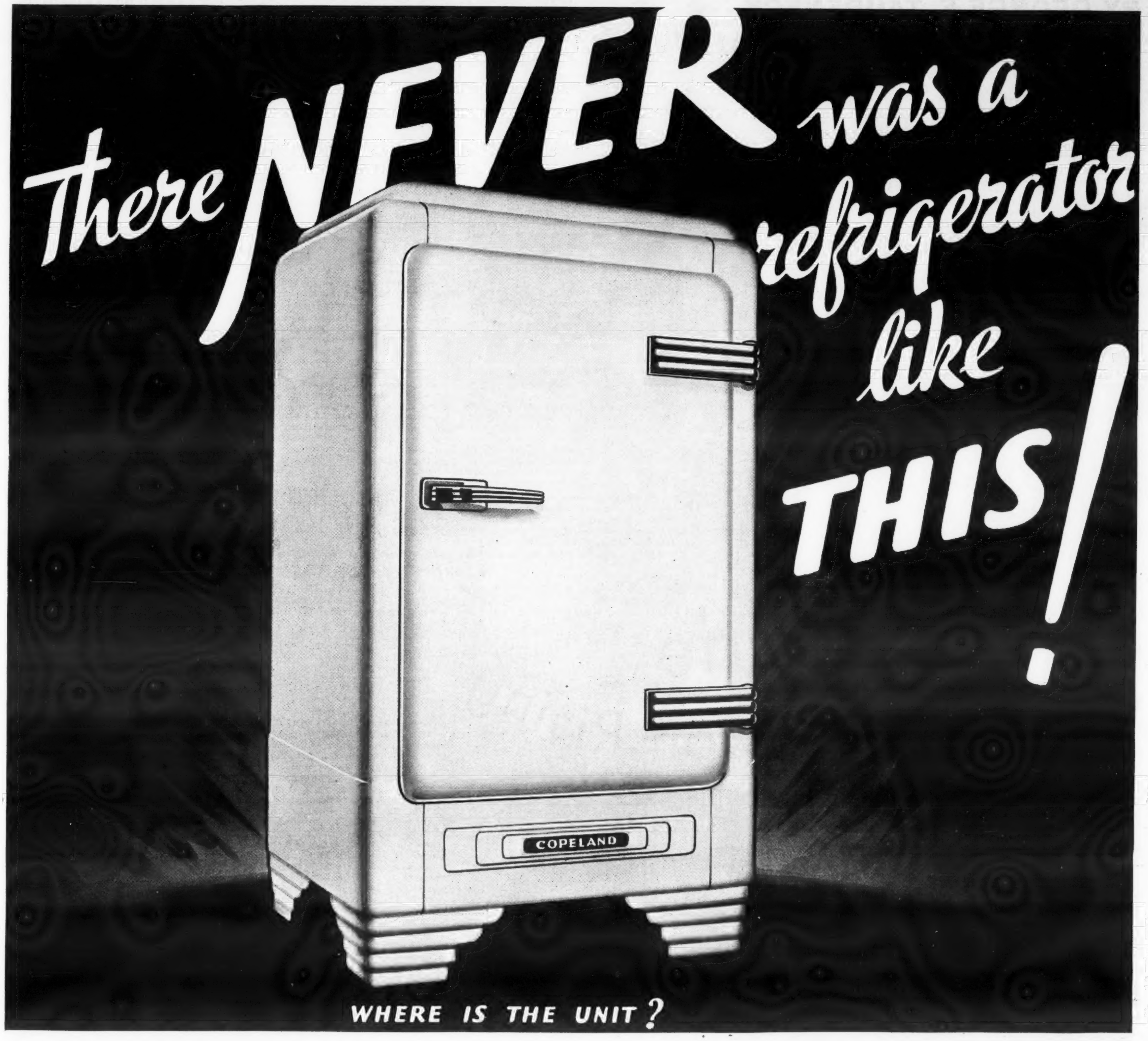
We should like to tell you more about this insulating material—about its low coefficient of thermal conductivity, its moisture resistance, light weight, rigid strength, and lasting efficiency. We will gladly send samples and complete data. Armstrong Cork & Insulation Co., 917 Concord St., Lancaster, Pa. Armstrong's Ⓐ Product



THIS FRIEDRICH DISPLAY CASE *is insulated with Armstrong's LK Corkboard, which helps assure economical maintenance of low temperatures and protection of perishable products. Mr. Friedrich realizes that use of corkboard insulation provides a strong sales argument.*

Armstrong's TYPE *LK Corkboard Insulation*

Efficient, Durable Insulation for Refrigerated Equipment



The newest, finest, greatest refrigerator ever offered or even dreamed about. A triumph of 17 years of scientific research and engineering development. Made by one of the oldest and largest manufacturers of refrigeration equipment in the world.

The 1933 Copeland is the most revolutionary development in the history of the industry.

It wipes out all dealer service problems.

It contains a new hermetic-type cartridge unit.

The 74-pound full-powered unit is not on top, in the bottom, on the sides or on the front or back of the cabinet.

The Compressor, *including the MOTOR,* has only 3 small moving parts.

It slips in and out of the cabinet quicker than a refrigerator can be filled with ice.

It defrosts automatically.

It makes the entire cabinet a semi-hydrator.

It's all food and ice space, in much less kitchen space.

Radical changes have affected every angle of your market for two years. Copeland meets this 1933 market with the outstanding challenge of the industry—the most advanced design and—a new type of mechanism which overturns all existing methods of distributing and selling.

The 1933 Copeland

Get the whole Profit and Sales Plan Story— SEND THIS COUPON NOW

COPELAND, Mt. Clemens, Mich.

Gentlemen:

I want to know all about the 1933 Copeland.
I have handled the following refrigerators:

_____

NAME _____

NAME OF FIRM _____

ADDRESS _____

_____ N2

BY GEORGE F. TAUBENECK - - -

(*Concluded from Page 2, Column 5*)

decomposes into toxic gases, and made great capital of the fact.

At present the production of dichlorodifluoromethane is almost at a stand still. Frigidaire is using it for ice cream cabinet and air-conditioning installations, and will supply compressors charged with F-12 on special order.

Because of its usefulness in connection with air conditioning, its friends expect it to get a new hearing, followed by rather widespread acceptance, in the not-too-distant future. That, of course, is highly problematical.

* * *

Electric Refrigeration Bureau

During 1932, the Electric Refrigeration Bureau extended its activities, and continued to promote acceptance of electric refrigeration throughout the country. A resume of some bureau activities follows:

In February, the bureau proposed a national quota of 1,000,000 household electric refrigerators to be sold during the year. On March 12, it sponsored a nation-wide radio broadcast, with J. E. DAVIDSON, national bureau chairman, speaking to give the industry a good send-off on its quota chase.

Also in March the bureau announced that 365 active local bureaus had been established.

The executive committee of the organization approved on March 21 an appropriation of $215,000 for national magazine advertising, $37,000 for preparation and printing of plan books, $27,000 for field work, and $10,000 for a cooperative exhibit at the N.E.L.A. exhibit in Atlantic City. This exhibit was to replace individual exhibits by contributing manufacturers.

By the end of April all of the 10 companies contributing to the bureau's maintenance (except Universal Cooler Corp., which waived the privilege) had been given representation on the bureau's executive committee.

From Oct. 1 to 8 the bureau sponsored Electric Refrigeration Week, and distributed 30,000 sets of directions for staging local refrigeration exhibits among utilities, distributors, and dealers of companies contributing to the bureau's upkeep.

During November and December the bureau held a national Christmas display contest to encourage central stations and dealers to use effective refrigerator displays during the pre-Christmas buying season.

Throughout the year DR. G. W. ALLISON, bureau field manager, made visits to many cities, encouraging organization of new local bureaus and striving to stir up increased activity by established bureaus.

* * *

Independent Service Firms

Until this year independent service companies have gained little headway. Many manufacturers have considerable investment tied up in service equipment and organizations, and have protected their service facilities by refusing to sell parts to the independent companies (which has led to small-scale bootlegging of parts).

The influx of new manufacturers, however, and the great enlargement of the numbers of service men turned out by factory schools and by private engineering schools, has led to a sizeable expansion of independent service organizations throughout the country.

Department stores and large merchandising outlets are taking advantage of these concerns by securing their services on a flat-rate fee basis for the length of guarantee periods.

Two large manufacturers now employ independent service companies for all their field work.

* * *

Home Service

One of the most efficient and widely used means of sales promotion in 1932 was home service work.

Many of the important manufacturers of electric refrigeration, together with distributors and dealers throughout the country, now have efficient home economics corps of women to demonstrate cold cookery to prospects and generally to interest women in electric refrigerators.

New this year was Gibson's home service department, headed by Miss JACQUELINE FROST.

In order to train women for this specialized field, refrigeration companies have set up training schools under the direction of capable home economists.

General Electric was one of the first companies this year to organize a training course along this line when it introduced in February a Correspondence course in home service, prepared by EDWINA NOLAN, for women in the field who wished to broaden the scope of their work.

At about the same time Kelvinator was holding its second series of home service training schools at its Detroit offices.

The Electrical League of Cleveland, finding there was a demand for, but no supply of, experienced home economists, inaugurated a school to train women for this important branch of specialty merchandising. Names of graduates are kept on file, and are referred to prospective employers.

Of increasing importance this year were courses given in various colleges in the demonstration of electrical appliances. One of the best "equipment" departments is at Iowa State College.

Miss EMMA TIGHE of the Boston Edison Co.'s "Friendly Kitchen" has succeeded in gaining the cooperation of the schools and colleges in her city to the point that members of her department go into these schools and colleges every year to lecture on refrigeration, ranges, etc.

Work of electric refrigeration home service departments this year has included the compiling of statistics and food planning hints helpful to the housewife; the printing and distribution of cold cookery recipes; advertising of electric refrigeration by means of articles in national magazines; cooperation with such organizations as the Kroger Food Foundation in giving cooking schools to demonstrate specific brands of refrigerators; and lecture tours throughout the United States.

Two definite cooperative steps were taken by home economists of the large companies this year:

(1) Feeling the need of standards for home service departments of electric appliance merchandisers, the third annual N.E.L.A. Home Service Conference, held in New York City in April, made a motion to establish a committee to set up such standards.

(2) In the late fall, stressing the need for more publicity in the home economics field, MISS MARIAN SAWYER, Kelvinator home economist, suggested at the meeting of the home economics section of the National Electric Light Association in Chicago, that the association publish a quarterly bulletin on home economics. Her suggestion was acted upon, and she was appointed chairman of a publicity committee to formulate plans for the bulletin. Publicity will also be disseminated by this group to newspapers, magazines, and trade papers in the coming year.

G. E. DISTRIBUTORS PLAN SPRING DRIVE FEB. 15-16

(*Concluded from Page 1, Column 1*)

present. Attendance will total approximately 300.

Convention program will be staged by the merchandising division of the refrigeration department, with Mr. Zimmerman as chairman. T. K. Quinn of New York City, vice president of the General Electric Co., will be the only speaker, other than the chairman, to address the convention.

"Parade of Progress" is the name given the meeting, and will be the theme of the entire activity.

A specially prepared sound motion picture titled "Parade of Progress," will be shown during the convention, according to Mr. Zimmerman. Convention headquarters will be established in Wade Park Manor and meetings will be held in the Masonic auditorium.

W. J. Daily, manager of the advertising and sales promotion division, and his assistants will portray from the stage of the auditorium an outline of the national advertising program in trade publications, national magazines, and newspapers on the G. E. refrigerator, range, dishwasher, and G. E. kitchen to be run in conjunction with the spring sales drive.

M. F. Mahony, manager of the merchandising division, and a group of his assistants will dramatize the principal features of the national sales campaign that will open shortly after the convention closes.

Other division heads who will dramatize their presentations with the aid of members of their respective divisions, and the subjects to be treated are as follows:

W. E. Landmesser, manager of the commercial division, an outline of 1932 commercial refrigeration activities and new sales plans for 1933.

H. H. Bosworth, central station division manager, an explanation of the 1933 utility sales activities.

A. M. Sweeney, manager of the production and distribution division, the story of the General Electric product.

G. D. Kobick, manager of the apartment house division, a review of replacement installations during 1932 and an outline of the opportunities offered for replacements this year.

Jean DeJen, campaign manager of the merchandising division, a disclosure of plans for a sales contest to be conducted by the merchandising division during the spring months which will include sales of General Electric refrigerators, ranges, dishwashers, and G. E. kitchens.

At the close of the convention several troupes of players will be sent to all parts of the country to attend regional conventions of distributors.

Grunow Appoints Three District Managers

CHICAGO—W. E. Darden has been appointed divisional manager on the Pacific Coast; O. H. Bowman in the Middle West territory; and H. T. Stockholm in the South, for the Grunow Corp., according to H. C. Bonfig, general sales manager.

Darden was formerly sales manager for Ernest Ingold, Inc., Atwater Kent distributor in northern California.

Bowman was associated formerly with Grigsby-Grunow Co. as field representative.

Stockholm has been connected with the Atwater Kent organization for the past 14 years as district sales manager, taking care of territorial distribution in almost every section of the country.

DEALERS TO COMPETE FOR RADIO PRIZES

(*Concluded from Page 1, Column 2*)

already known to those who have read Cohen's stories and books, and humorous negro characters for which the author has become noted. It will be presented in 54 episodes.

Of the nine contests to be conducted in conjunction with this mystery play, two will be for dealers and their employes, and seven will be for the public, according to Leavenworth.

Prizes for Dealers

Dealer prizes include three automobiles, gold watches, and other items.

Prizes for the public include Westinghouse refrigerators, electric ranges, washing machines, vacuum cleaners, and other Westinghouse products.

Dealers and their employes who compete for the three automobiles and other major prizes in the two contests especially limited to that group, will be asked to listen for the new Westinghouse slogan which will be introduced in the initial program.

Winners of the first contest will be those who properly identify the new slogan and sumbit the best comments on it. Winners of the second contest will be those who most closely estimate the total number of times the new slogan is used in the 54 episodes, and submit the best letters telling how they used the new slogan to advantage.

Publication advertising will direct attention to the program, and invite the public to call at the dealer's store. Dealers will receive special cardboard cut-outs of the main characters in the radio drama, and these figures will be used to direct attention to Westinghouse products on display in store or window.

Dealer Helps

As the mystery develops, dealers will be supplied with window signs done in rotogravure process. On these signs will be action protographs of the characters in the scenes enacted, newsy information about the drama, and advertising matter regarding Westinghouse appliances.

Another dealer help is the clue sheet which the public will be told to secure at the dealer's store. This clue sheet will enable the listener to help solve the series of sub-mysteries injected into the broadcast programs.

Listeners will be invited to test their skill as detectives, and nearly 1,000 prizes will be awarded those who submit the best solutions. Since the clue sheet will offer helpful information to those who compete for the prizes, this feature of the contest is expected to create considerable store traffic for dealers.

GIBSON DISTRIBUTORS IN EAST AND SOUTH CONVENE

(*Concluded from Page 1, Column 4*)

son, and L. V. Montgomery, Louis Buehn & Co., Philadelphia.

Max and Maurice Landay, Capital City Distributing Corp., Albany, N. Y.; Harry Gee, Gee Electrical Co., Wheeling; R. L. Harrison, Henley, Lane & Harrison Co., Richmond; K. C. Hosmer, Johnston Auto Co., Johnstown, Pa.; Mr. Kline of Kline Corp., Norton, Va.

Max and Paul Krich, Krich Distributing Co., Newark; H. G. MacRae, MacRae Co., Rochester, N. Y.; G. F. Williams, Petroleum Engineering Co., Springfield, Mass.; Ed Young, Young Bros., Erie, Pa.; and Charles D'Elia, D'Elia Electric Co., Bridgeport, Conn.

West Coast Series

GREENVILLE, Mich.—F. A. Delano of the sales department of the Gibson Electric Refrigerator Corp., Walter P. Hallstein of the service department, and L. E. Taufenbach, Gibson west coast division manager, are conducting a series of distributor-dealer meetings in the west coast territory.

First meeting was held Jan. 26 at San Diego, Calif. Other meetings will be held in Los Angeles, Sacramento, San Francisco, and Oakland, California; Portland, Ore.; and Seattle.

E. H. McCarthy, Gibson middle west division manager, conducted a dealer meeting Jan. 27 at Milwaukee under the auspices of the Charles E. Turnock Co.

Dealer Meeting

KALAMAZOO, Mich.—Officials of Gibson Electric Refrigerator Corp. presented the 1933 Gibson line and discussed merchandising plans for the year at a dealer meeting sponsored here Monday night by the Bay View Furniture Co. of Holland, Mich.

Factory men attending the meeting were Frank S. Gibson, Jr., vice president in charge of sales; W. R. Marshall, advertising and sales promotion manager; and W. J. Browne of the advertising and sales promotion department.

Ride the Tide that Keeps on Rising

EVER since the first Leonard Electric was introduced, Leonard sales have continued to increase at a rate that has attracted the attention of the entire refrigeration industry. In 1932 more than twice as many Leonards were sold as in 1931—and the Leonard sales curve still climbs sharply.

There are sound reasons for this phenomenal success, and they are reflected in hundreds of letters Leonard has received from dealers. These letters are not like any other refrigeration dealer letters you ever saw.

The reason they are different is that *the experience of Leonard dealers is different.* They have something to say—results to quote—real success to talk about. We'll be glad to send you copies; they reflect an enthusiasm for the Leonard product, policies and program that we think is unique in the industry.

The Leonard tide keeps on rising—with the weight of Leonard reputation, beauty and quality behind it. The new Leonard Electric (10 models—4 all-porcelain) offers an unequalled combination of convenience features. Prices begin at $112.00 (f. o. b. factory, installation and tax paid). It is backed by the strongest advertising and selling program in the company's history.

If you are interested in knowing what Leonard dealers think of this profit opportunity for 1933, write or wire us.

LEONARD REFRIGERATOR COMPANY
14256 Plymouth Road, Detroit (552)

Only Leonard has the LEN-A-DOR

LEONARD
ELECTRIC REFRIGERATOR

PRICES START AT
$112 F. O. B. DETROIT
INSTALLATION AND TAX PAID

THIS IS *Our* YEAR

A Specialty line for the Specialty minded Distributor and Dealer

WITH cash expenditures of practically one million dollars—with production facilities in excess of two million dollars—with more than six years of tradition and building behind us, our company announces for 1933 THE MOST OUTSTANDING LINE OF HOUSEHOLD REFRIGERATORS THIS INDUSTRY HAS EVER SEEN. This is a straight-from-the-shoulder statement and defies challenge.

On January 18th, we published in Electric Refrigeration News a survey of the industry which clearly showed the chaotic conditions and lack of profit opportunities now surrounding conventional merchandise. Our statements of facts contained therein have not been challenged. If the facts as published were true (and they are true) distributors and dealers who wish to make profits this year should obtain complete information regarding *our* merchandise and *our* sales plans. The combination of the chaotic conditions now prevailing in the industry together with our revolutionary features, prices, sales policies, and the most outstanding discounts ever offered have indeed made 1933 "our year".

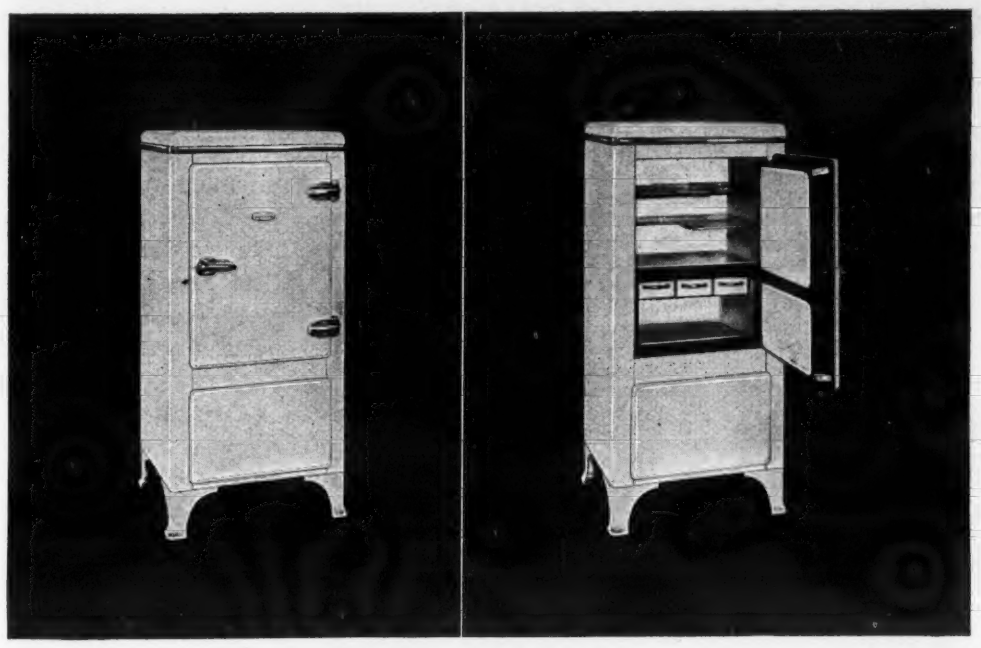
The pictures of our refrigerators on this page cannot give even a slight understanding of the revolutionary features and sales value of this remarkable line. We prefer to make this presentation by direct mail or through personal contact.

Our program is not a "factory" program, keyed to volume at any cost; it is a "sales" program founded on *action* and *profits* for our distributing outlets. We pride ourselves that we are one institution which fully recognizes that for continued success, a factory can be sound only as long as its distributors and dealers are making appreciable profits.

We reiterate that in the field of refrigeration, 1933 is "our year". If you would make it "your year", write or wire us immediately. The selling season has almost arrived. If you intend to be prepared, prompt action is necessary.

President

TRICOLD REFRIGERATOR CORPORATION
296 DELAWARE AVENUE BUFFALO, N. Y.



POTTER MODEL—L88

POTTER MODEL—L107

POTTER MODEL—L134

POTTER MODEL—L160

POTTER MODEL—L190

POTTER *Refrigerators*

ELECTRIC REFRIGERATION NEWS
The Newspaper of the Industry

Published Every Week by
BUSINESS NEWS PUBLISHING CO.
Also publishers of REFRIGERATED FOOD NEWS (monthly) and REFRIGERATION DIRECTORY and MARKET DATA BOOK (annual)
550 Maccabees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

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EDITORIAL AIMS

To encourage the development of the art.

To promote ethical practices in the business.

To foster friendly relations throughout the industry.

To provide a clearing house for new methods and ideas.

To broadcast the technical, commercial and personal news of the field.

Silver Lining

P. B. ZIMMERMAN, manager of General Electric's refrigeration department, is said to have remarked that the industry was likely due for a price turmoil sometime in its history, and that 1932 was probably as good a year for it as might be picked.

And barring further general reductions in purchasing power, there are some straws in the wind which may be taken as pointing toward an opportunity for leaders of the better established portion of the industry to draw a few good, deep breaths this year.

In the first place, it would seem that while the industry's total sales volume in 1933 may be no larger than that of 1932, individual companies may get a larger share of that volume than they did last year.

Fewer Manufacturers in 1933

Contrasting with the first months of 1932—when it seemed as if almost every manufacturer in the country who had an idle plant on his hands was preparing to break into the refrigeration industry—the number of manufacturers now beginning their spring campaigns is probably smaller than the number of competitors in 1932.

From many parts of the nation come field reports that the local tinkers who disturbed markets in many localities last year are "all washed up." On the West Coast, for instance, it is reported that more than a dozen small makers who tacked together price jobs last year have folded their tents and silently stolen away.

Surplus Plant Capacity

Moreover, the 1933 horizon is not dotted with the smoke of new manufacturers. If there are concerns getting ready to enter the electric refrigeration manufacturing business—which already has so much plant capacity that at least four different plants could each turn out all the refrigerators which are purchased annually by the entire world—they have been remarkably adept at concealing signs of their activities.

Even more interesting to the field is the observation that the country probably has fewer electric refrigeration distributors and dealers at present than at any time in the last two years.

Fewer Dealers This Spring

Competition among dealers for individual sales this spring will undoubtedly be keen, as it has always been; but in a great many cities and towns there will likely be fewer retailers in the business. Some, finding the refrigeration game unprofitable (when played under the rules of "chiseling"), have quit handling the line; others—particularly distributors—have passed out of business altogether.

Dealers and distributors will undoubtedly be pleased at that situation. Human beings, biologists have noted, have been able to master other animals, no matter how much larger; but until comparatively recently have been almost powerless against tne ravages of such infinitesimal forms of life as germs. Likewise, most dealers don't abhor genuine competition from other dealers of similar size, type, and purpose; but have been nonplussed by the parasitic attacks of 1932, in which there were hundreds of new dealers leeching the market by passing on two or three refrigerators at cut prices to friends, neighbors, and relatives.

Drive for Quality Dealers

Sales managers of several manufacturing organizations have declared recently that the mad scramble for dealers during the last three years was probably a mistake. This year, they assert, the drive will be to get quality dealers who have proved they can sell refrigerators, rather than to line up a long roster of small-timers who can move a unit or two only by chiseling and thus spoiling the market for "legitimate" dealers. Quality, rather than quantity, seems to be the new order in granting dealer franchises.

Behind every cloud, Tin Pan Alley is fond of telling us, there's a silver lining. Perhaps the silver lining behind the clouds of 1932 for the refrigeration industry is the fact that competition has been thinned out and that possible new competitors have been discouraged from any thoughts they may have entertained of crashing the gate.

Individual Shares May Be Larger

The fact that the industry's remarkable string of annual rises in sales volume has at last been broken has undoubtedly turned the attention of the opportunists elsewhere (in the direction of air conditioning, for example). And the fact that retailers in most cities of the country are acquainted with facts concerning the declining profits of refrigeration dealers last year (caused primarily by excessive competition) is going to make it unusually difficult to sign up new, untried dealers this season.

After all, it is not the industry's total sales figures which count so much as the amount of business each individual manufacturer, distributor, and dealer gets for himself. Looking at the situation from that viewpoint, there seems to be plenty of ground for hope.

GLEANINGS

LOW SPOTS

THE year's totals are now in. They are about as anticipated. No worse and no better.

Refrigeration is off about 20 per cent in units, 37 per cent in dollar volume. Washers, the old time standby, show a decrease of 30 per cent in units, 51 per cent in dollars. Cleaners are off 36 per cent in units, 48 per cent in volume. Last January's high hopes for range sales and the three-year campaign went glimmering in early summer, and the year ends with a total of 60,000 units compared to the 115,000 sold in 1931; average prices, however, were encouraging, standing at $150 per range, in spite of adverse forces. And so on down the list.

The decline in business in 1932 has been accompanied by shifts in distribution. The utilities showed a further tendency to retire from active merchandising. Their hesitancy and lack of courageous and clear-cut policy in many sections did the industry and themselves no good. On the other hand, in those localities where utility leadership was strongest business was relatively best. The department stores sold more appliances but they continued to depress price levels and to offer an outlet for the gyp manufacturer. Mail order houses increased the relative proportion of their electrical business. What all this did to the dealer was plenty. And yet the contractor dealer and specialty dealer survive and still offer the industry a stable class of outlet for specialty merchandise and the best agency for that essential factor—service.

A brighter side of the picture is in the growth of group enterprise within the industry. No single cooperative plan was, so far as we can find, abandoned during 1932. And many new forms of working together were instituted. The Refrigeration Bureau has continued to build business and direct community activity in that field. The Electric Cookery Council has established 40 local councils as the beginning of a rapidly spreading movement.

Horace Liversidge recently said that we must actively organize and promote collective action if we are to restore the prosperity of the electrical appliance industry. That is a keynote and a rallying cry for 1933.—*Electrical Merchandising*, January, 1933.

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

Buffalo, N. Y.

(Continued from Last Issue)

Most obvious manifestation of Buffalo's civic consciousness and pride is the new City Hall. It slaps you in the face almost simultaneously with the stiff lake breeze the moment you arrive in the centertown district. And like dirt particles with which Buffalo air is laden, you can't keep this building out of your eyes.

What, you ask the taxi driver, is that handsome big skyclimber over there? He tells you it is the City Hall; whereupon, not believing your ears, you ask him again, and he repeats his answer. Unwillingly, you are forced to accept the fact that this highly modern office building is really the home of politicians.

Proud must be the architect who conceived the design for Buffalo's City Hall; also the builder who executed it. If you'd ask us, we'd vote unhesitatingly that it is the most stunning city hall in America.

Next most prominent centertown structure is that General Electric building, which is tall (for Buffalo), somewhat Colonial in design and, of course, well floodlighted.

Perhaps another wreath should be placed at the foot of the New York Central's monument to Buffalo's transportation importance—its $14,000,000 terminal, which also had a good architect.

While we're on the subject of eye-compelling buildings, we'd be traitors to the cause of beauty should we not pause—almost reverently—before the Albright Art Gallery.

If the Institute of Arts in Detroit had so lovely a setting, so graceful a necklace of trees and shrubs and flowers, we should like to catalog it as queen of the art galleries we've seen (considering external appearance only—not quality of the collection inside). But with the deft landscaping of the Albright Art Gallery grounds enhancing its flowing Corinthian symmetry, we must give it the crown.

Other architectural treats include the old-worldly Our Lady of Victory Shrine in South Buffalo (adjoining Father Baker's famous orphanage), the Buffalo Consistory, the illuminated Historical building in Delaware Park, buildings of the Roycrofters in East Aurora, and the campus of the University of Buffalo.

In none of these, however, do we advise you to spend any time—unless you have a few days to kill. Single timeworthy rubberneck spot is the Buffalo Museum of Natural Sciences in Humboldt Park.

* * *

Niagara Falls

Grandest sight the Buffalo territory has to offer is, unquestionably, Niagara Falls. Most travelers who come to Buffalo for the first time don't know that the Falls are but 23 miles away, and that fast electric lines will take them there so rapidly that they'll scarcely have time to leaf through a morning paper before the trip has ended.

Niagara river connects Lake Erie with Lake Ontario. It is wide, deep, and strong. Beginning at Buffalo, it divides to encircle Grand Island, is reunited near the Falls, and then plunges over a 162-foot cliff into a gorge.

As a large percentage of the country's honeymooners know, it isn't the height of the Falls which makes them so impressive, but their width and force. If you go there expecting to see a skyscraperlike drop of water, you'll be disappointed.

Actually there are two falls: the Canadian (sometimes called the Horseshoe Falls), which is the widest, and the American, which is the heaviest. A small island separates them.

To many visitors the Falls are not so thrilling as the rapids below. At a breathless pace the water which has shot over the brink of the Falls roars and swirls through a gorge, 'round and 'round a whirlpool, and onward until the river eventually quiets down and flows evenly and uneventfully into Lake Ontario.

At night the Falls are illuminated by great arc lights, which impell (the Niagara Hudson power company tells us) 1,440,000,000 candlepower of light through the thick mist and onto the falls themselves—thus flinging back at the Falls some of the vast quantities of electricity which they help generate.

Colored screens may be slipped over the arcs, making a nocturnal rainbow of the Falls. Anybody who insists that Man can't improve on Nature in the creation of beauty should be confronted with this splendor!

In winter ice sometimes encrusts great portions of the Falls, and visitors may see gigantic outdoor stalagmites and stalactites, pipe-organ formations of icicles, and other noble frozen sights.

We can't resist relating the Paul Bunyan legend (relayed by James Stevens) about the formation of the Falls:

It seems that once upon a time the mighty logger strayed out of his Michigan woods, and happened onto the Niagara river. Now in those days the Niagara river was young and prankish. For a time it would run along an inch deep and a mile wide, and then it would turn over on its side and run a mile deep and an inch wide.

The great Paul Bunyan thought that the Niagara was altogether too impertinent, so he commanded it to behave like a normal, well-bred river. Niagara answered by drenching Paul, and the battle was on.

They wrestled and wrestled and wrestled; but finally the Herculean woodsman broke the back of the Niagara, and so since that time the Niagara has had to endure a broken vertebra. That broken vertebra, ladies and gentlemen, is now known as Niagara Falls!

LETTERS

Authoritative

The Merchandise Manager
New York City
Jan. 25, 1933.

Editor:

Your ELECTRIC REFRIGERATION NEWS seems to be such an authoritative spokesman for the industry that it represents, that we would like to receive it regularly, and I wish you would ask your circulation department to enter our subscription and bill us.

CLINTON G. HARRIS,
Editor.

Back to Normal

Cain Radio Co., Inc.
306 Park St., Jacksonville, Fla.
Jan. 10, 1933.

Editor:

We wish to compliment you and also to congratulate you on your issue of Jan. 4.

There is certainly a wealth of information in this particular issue, the same could be said of every issue of your paper, which we look forward to here every week and read faithfully.

We feel that the outstanding announcement of this issue is the announcement that one of the big manufacturers has gone back to the one-year warranty, in other words, we are getting normal again.

Please pardon the writer for saying that we are very happy to be handling a line of refrigerators, the manufacturers of which blazed the trail in this respect. We refer to Leonard.

We would appreciate it if you would mail your paper to Mr. Jimmie Wiggins, c/o Sterchi Brothers, Jacksonville, Fla., for one year and send the bill to us and we will send you a check for same, or, in order to save stamps (please note our Scotch maneuver) we are enclosing our check for the $3.00.

Wishing you every success for the continuation of your paper, without which the industry would be at a great loss for reliable information and with best wishes for 1933, we remain

F. M. BULTMAN,
Vice president & general manager.

P.S. Now that we are beginning to get out of the "depression" you will no doubt have a chance to visit Florida—do not fail to call in to see us.

Well Posted

R. R. No. 9, Menomonie, Wis.
Jan. 16, 1933.

Editor:

I am only a mere service man but I would hate to be without ELECTRIC REFRIGERATION NEWS. It keeps me so well posted on what's new in refrigeration.

HERBERT WERNER.

Service Information

Electric Refrigerating Service
Syracuse, N. Y.
Jan. 18, 1933.

Editor:

I read your ELECTRIC REFRIGERATION NEWS every week with much interest and can only give it my best comments for its valuable information to every service man. It helps me greatly in keeping up to date on the electric refrigeration industry. Please accept my appreciation for your work in conducting your paper.

FRITZ HARDER.

Full of News

City Refrigeration Service
Springfield, Mass.
Jan. 20, 1933.

Editor:

Your publications are so full of news it is just impossible to be without them.

ALBERT L. POST.

COMPANION MERCHANDISE

MAJESTIC RADIO SUIT VS. R.C.A. DISMISSED

KANSAS CITY, Mo.—The $30,000,000 suit brought in the Federal Court here in June, 1930, by the Grigsby-Grunow Co. against the Radio Corp. of America and affiliated organizations was dismissed on Jan. 17 by Judge Albert L. Reeves.

The dismissal followed the filing of a stipulation based on a settlement made Dec. 30 in Westchester County, N. Y. The terms of the settlement were not revealed by the stipulation.

The suit, filed by former Senator James A. Reed as counsel for Grigsby-Grunow Co., alleged that the Radio Corp. of America and its affiliated companies, named as the General Electric Co., Westinghouse Electric & Mfg. Co., and others, had formed a patent pool, resulting in world-wide control of radio manufacturing.

The petition alleged a conspiracy in restraint of trade on the part of the several organizations named as defendants, as defined by the Sherman Anti-Trust act.

B. J. Grigsby, chairman of the board and president of Grigsby-Grunow Co., in commenting upon the dismissal of the suit, said:

"This action, reached by agreement of the parties following the recent consent decree of dissolution of the Radio Combination in the suit of the United States government at Wilmington, Del., marks the successful conclusion by the Grigsby-Grunow Co. of its fight to obtain better terms and conditions for the radio industry in its operation under the patents of Radio Corp. and its associated companies."

TORRIDHEET DESIGNS NEW FLAME-TYPE OIL BURNER

CLEVELAND—The Cleveland Steel Products Corp., Toridheet division, has placed a new wall-wiping flame-type oil burner on the market, known as model C.

Aluminum is used in the construction of the die cast stack assembly which consists of the burner stack, three adjustable legs, two motor brackets, and an adjustable air shutter.

The motor is a single phase, alternating current, capacitor type. It is designed for vertical operation, and the only moving part is the rotor which revolves at a speed of 1760 r.p.m.

Starting current is less than 1½ amperes, and the running current approximates ⅓ ampere. Lubricating oil is supplied to the bearings by a reservoir at the bottom of the motor which contains sufficient oil for from three to five years of normal operation. Oil is fed through wicks held in contact with the motor shaft.

Hotpoint Sponsors Salesmen's Contest

CHICAGO—An "On to Chicago" nation-wide contest for retail salesmen of Hotpoint electric ranges is to be sponsored by the Edison General Electric Appliance Co., from March 1 to June 30, according to P. L. Miles, sales manager.

Winners of the contest will assemble in Chicago for one week in August at the Century of Progress exposition.

Promotion material which will be sent to retail salesmen during the contest period will include such things as imitation movie cameras, a moving reproduction of the sky ride which will dominate the Century of Progress grounds, and other dramatic presentations.

The scoring record is to be a series of 20 golden steps, five feet wide, leading up to a brilliantly lighted stage on which three-dimension buildings and globes show the Century of Progress exposition buildings and insignia. Figures of salesmen mount the steps as sales are made.

Advance information in deluxe form was sent to a selected list of sales executives early in January. District managers and representatives of the Hotpoint organization are now presenting the complete promotion plan to public utilities and large dealers throughout the country.

The "On to Chicago" contest is part of a spring sales plan which is to be called the "Quarter-Century of Progress," commemorating the fact that it was 25 years ago that George A. Hughes, president of the company, started his first experiment which resulted in the modern type of electric range.

Although the contest is to be national in scope, all parts are planned so that they may be localized. The name of the city as well as the local dealer will appear on the covers of direct mail folders.

Other parts of the campaign include large newspaper cooking schools; a retail salesmans training course, which is individually adapted to the requirements of each salesman; and a retail salesman's sales visualizer so that he may demonstrate as well as lecture on the advantages of electric cookery.

8 DISTRIBUTORS NAMED FOR STANDARD RANGES

TOLEDO—Eight distributors have been appointed recently by the Standard Electric Stove Co. here. In addition to its line of electric ranges, the company has placed a new series of water heaters on the market. Both lines will be handled by the jobbers.

The following distributors have been appointed: California Wholesale Electric Co., Los Angeles; H. R. Curtis Co., San Francisco; Home Electric Co., Tacoma, Wash.; and Zion's Cooperative Mercantile Institution, Salt Lake City, Utah.

Standard electric ranges will be distributed in Honolulu, Hawaii, by the von Hamm-Young Co., Ltd., and in Buenos Aires by E. Lix Klett & Co., Ltd. All export business for the company is handled through S. A. Rapier, New York City.

W. H. Sinkinger, 19 S. La Salle St., Chicago, has been appointed company representative in the Chicago area; and the Industrial Sales Co., St. Paul, representative in the Minnesota and northern Wisconsin territory.

NORGE DISTRIBUTORS TO SELL 'ECONOMAID'

DETROIT—Norge Corp.'s new washer, which will be sold by Norge refrigerator dealers as companion merchandise at a recommended price of $59.50 f.o.b. Muskegon, Mich., has been given the trade name "Economaid," according to J. A. Sterling, Norge sales promotion manager.

Legs and base of the new washer are spot welded into a single piece and are finished in black. The tub is of white porcelain. The appliance is equipped with a six-vane impeller, three large vanes being used to maintain water motion, three small vanes serving to stop current backflow.

Wringer tension release is centered over the upper roller and may be operated from either side of the wringer. The washer's gears are in a sealed case, and a 20° angle on the gear is designed to minimize backlash.

The Economaid is powered by a direct-drive, rubber-mounted ¼-hp. Sunlight motor.

Akron Firm Markets Ice Cube Crusher

AKRON, Ohio—An ice cube crusher, known as the Ice Master, has been placed on the market by the Viking Products Co. of this city. It is made of aluminum alloy, cast in two parts and hinged together with a brass rod.

By pressing the two handles together like a nut cracker, the ice cubes are broken by jaws into fine crystals. It retails for $1 and is being sold by electric refrigeration dealers, department stores, hardware stores, and gift shops.

Officers of the Viking Products Co. are: Walter P. O'Neil, president; Edward K. Haver, vice president; and Marcus Derwort, secretary-treasurer.

ERLANDSON MANAGES SALE OF MAJESTIC AUTO RADIO

CHICAGO — Ray Erlandson, formerly assistant sales manager of the radio division of Grigsby-Grunow Co., has been appointed sales manager of the newly created auto-radio division.

A. A. Trostler has been transferred from Columbia Phonograph Co. in New York City to succeed Mr. Erlandson.

M. E. Paradise, who has been associated with Majestic since 1928, has been made chief engineer of the radio division.

A FACT THAT 10 YEARS IN THE REFRIGERATION INDUSTRY HAS TAUGHT US

. . . *In* Industry, *too,* CHARACTER *Counts*

Whatever the company, the public appraises it on the basis of its character. And we know that good character is achieved only through strict adherence to the laws of integrity, fairness and true service. We aspire to be regarded as an organization of good character. Therefore, we endeavor always to earn and maintain that reputation.

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN — BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

McCORD REFRIGERATION PRODUCTS

Commercial Evaporators
Domestic Evaporators
Condensers
Easy-Out Ice Trays
Spiral Finned Tubing
Spiral Copper Finned Iron, Steel or Copper Pipe

McCORD RADIATOR & MFG. CO.
DETROIT, MICH.

THE PLAIN UNVARNISHED TRUTH ABOUT PRESENT CONDITIONS IN THE REFRIGERATION INDUSTRY

● What's wrong with the refrigeration business? What's holding it back? Why are the manufacturers, distributors, dealers and salesmen in one of the nation's greatest industries making no money?

What has checked engineering progress in the development of increased refrigerating utility? Was the depression the real cause of the desperate recourse to low prices? Is low-price, cheapened merchandise bringing the refrigeration business to the brink of disaster?

Can these conditions that threaten the very foundations of the business be corrected? Is there hope for better business in 1933? How can it be assured?

These and a multitude of other critical problems and conditions within the entire industry today, are crisply, frankly brought out into the open in T. Irving Potter's searching discussion.

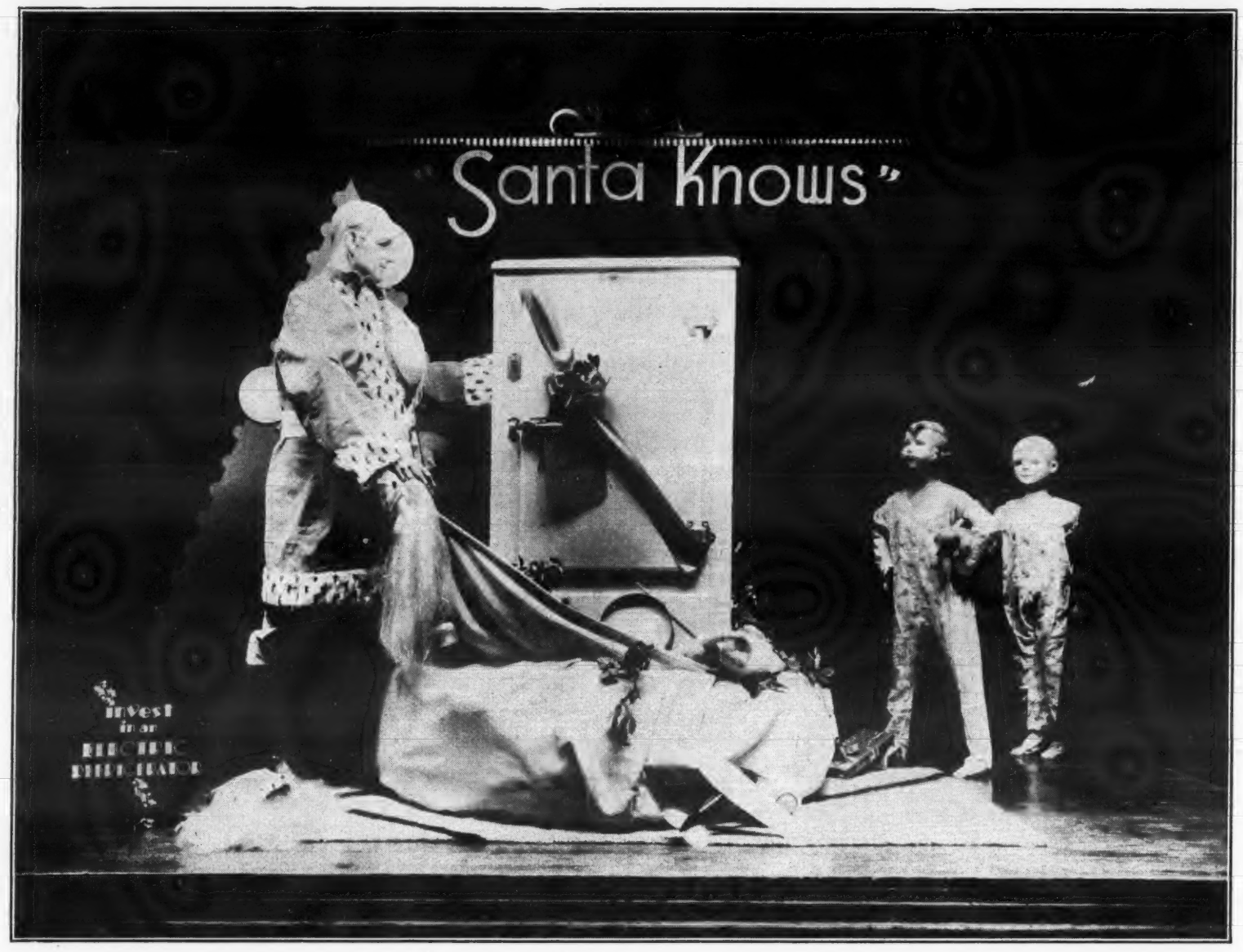
It's a volume of dynamite . . . a blast of sheer truth that every man in the selling end of refrigeration will want to read.

A copy is waiting your request . . . there's no obligation. Simply make the request on your letterhead to:

TRICOLD REFRIGERATOR CORP.
296 Delaware Avenue, Buffalo, N. Y.

Prize-Winning Pictures in Electric Ref

Six of the seven displays which won $100 cash pr



"Santa Knows"—what mother wants—is no doubt the theme of this window display of the Philadelphia Electric Co. store at 1000 Chestnut St., Philadelphia, which won the prize for the best central power station window display of 100 sq. ft or less. A Frigidaire dominates the scene.

Both the lighter and more serious sides of the holiday Christmas tree in the foreground and the pipe or Maltzahn's of Cincinnati, the prize for the

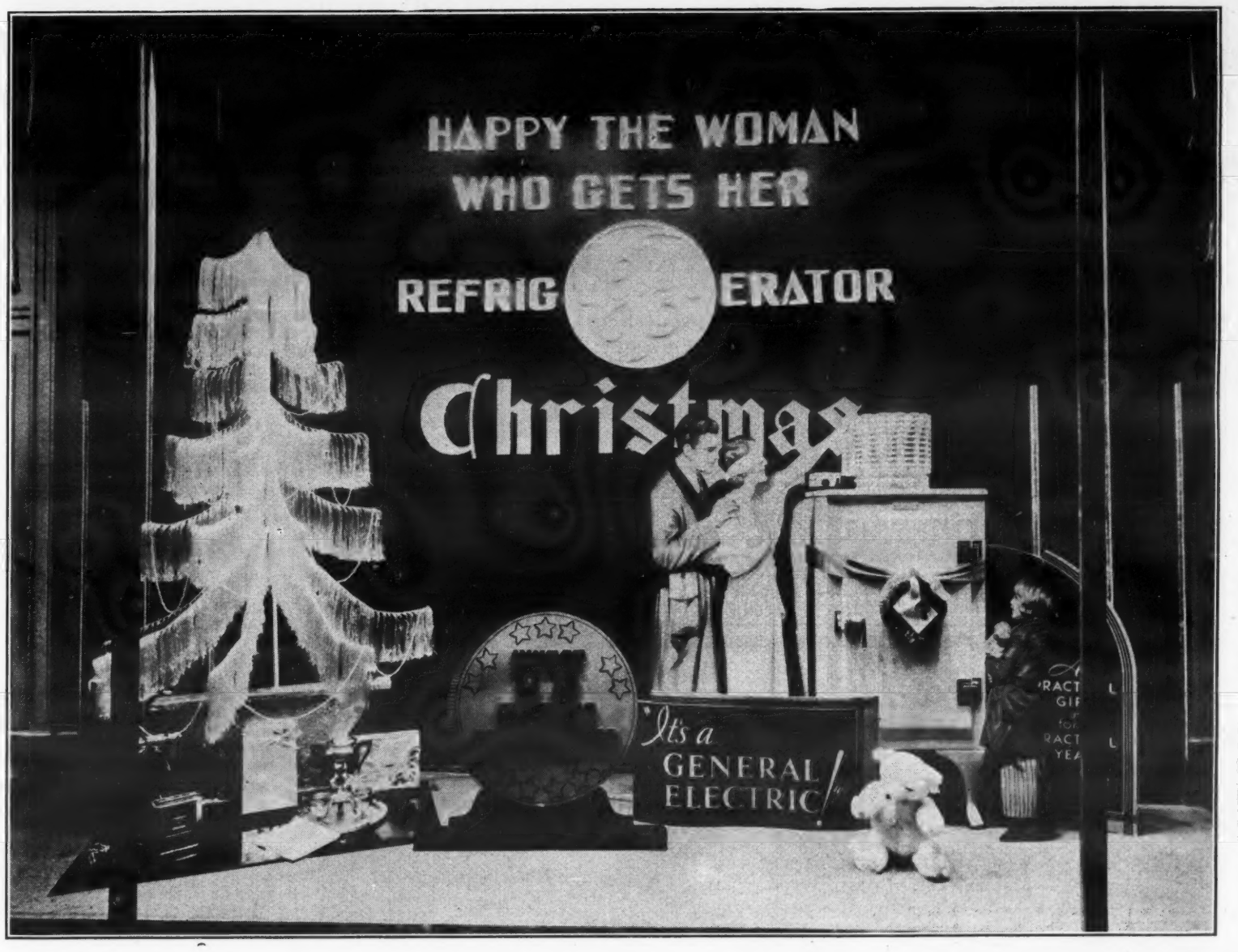
Simplicity enhanced by effective lighting marks the window display of the Minnesota Power & Light Co. of Duluth, which won the prize for the central station window display of more than 100 sq. ft.

A gigantic holly wreath and large candles, plus the ple wife on Christmas morning, made this interior display

Refrigeration Bureau's Christmas Contest

sh prizes. Grand prize winner is pictured on page 1.

e holiday season are expressed in this display, with the
ne pipe organ effect in the background. It won for
rize for the best dealer store interior display.



By making effective use of the famous illustration used in national General Electric Christmas advertising, and embellishing the display with effective lighting and decorations, Kerr Dry Goods Co., Inc., Oklahoma City, received the award for the best dealer window display of 100 sq. ft. or less.

lus the pleasure expressed by the replicas of man and
ior display of the Fitchburg Gas & Electric Co. a winner.

The Santa Claus who fulfilled Junior's request for a refrigerator also brought an award of $100 to the E. O. Cone Co. of El Paso, Tex., for the best dealer window display of more than 100 sq. ft.

Consider These Motor Facts

TODAY the trend of electric refrigeration is to the Capacitor Start Motor with a resulting improvement in refrigeration performance.

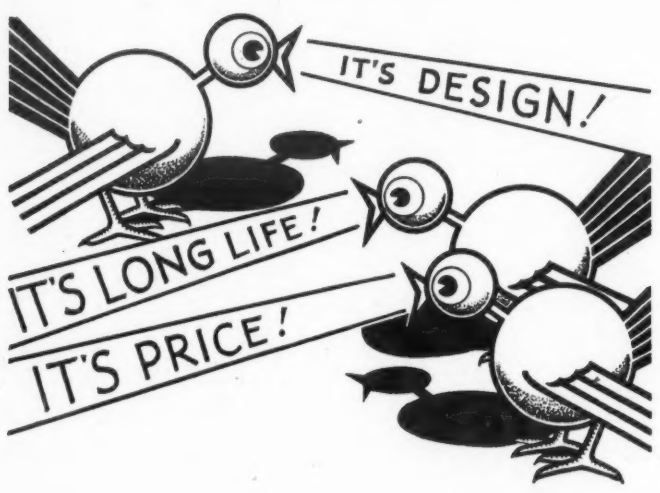
Howell Electric Motors Co. takes pride in its part in bringing about this improvement to the refrigeration industry, *for Howell pioneered the development of the Capacitor Start Motor—*

In considering your motor needs keep in mind the fact that back of the Howell *perfected* Capacitor Start Motor, is over five years of pioneering development—not one year—but over five years.

That means something in dependable motor service—to the dealer—to the manufacturer.

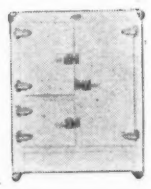
That same "something" that has made Howell Red Band motors *the motors for hard jobs* in the industry, is inherent in the Howell Capacitor Start Motor for refrigeration.

Howell Electric Motors Co.
Howell Michigan
Motor Manufacturers for 18 Years
Howell Sales and Service in over 50 principal cities



The BEST STEEL SHEETS are necessary . . .

Design and price will sell a cabinet but only outstanding quality will make it render satisfactory service to the user. Superior Galvannealed steel sheets have demonstrated over a period of years that they combine *all of the qualities* so essential to high grade cabinet production.



- Superior Galvannealed is a special analysis steel sheet, with a hot dip, heat treated zinc coating *bonded* to the base metal, rendering it rust-resisting to an unusual degree.
- The coating will not peel under the most difficult forming operations.
- The etched surface is ideal for receiving any finish—paint, lacquer or enamel—and it retains them under severe conditions of use.

The Superior Sheet Steel Co.
Canton, Ohio
Division of Continental Steel Corporation

Superior Galvannealed PATENTED PROCESS

AIR CONDITIONING

ENGINEERS TELL OF RESEARCH FINDINGS ON AIR CONDITIONING

(*Concluded from Page 1, Column 2*)

tems; cold walls and their relation to the feeling of warmth; and summer cooling of houses (two projects being described on the last subject).

The convention opened with an expression of welcome by K. A. Wright, president of the Cincinnati chapter of the society, followed by a greeting from the city's mayor, Russell Wilson. F. B. Rowley, national president, then took the chair. Monday's program was devoted to technical papers on heating and official business of the society.

Officers elected for the coming year are: W. T. Jones of Boston, president; C. V. Haynes of Philadelphia and John Howatt of Chicago, vice presidents; D. S. Boyden of Boston, treasurer; and the following council members: R. H. Carpenter, New York City; J. D. Cassell, Philadelphia; F. C. McIntosh, Pittsburgh; and L. Walter Moon, St. Louis.

Research Committee

Members of the committee on research, selected by the council, are: Albert Buenger, St. Paul; S. H. Downs, Kalamazoo, Mich.; H. N. Kitchell, Cincinnati; and Perry West, Newark; for a three-year term; and E. N. Sanbern, Philadelphia, for a one-year term.

Papers given on Monday were: "A Study of the Application of Thermocouples to the Measurement of Wall Surface Temperature" by A. P. Kratz and E. L. Broderick; "Observations on Heating Practice" by James Govan; and "Air Supply and Its Effect on Performance of Oil Burners and Heating Boilers" by L. E. Seeley, J. H. Powers, and E. J. Tavanlar.

Technical Sessions

Technical sessions on Tuesday were largely devoted to air conditioning. The morning meeting heard papers on "Cold Walls and Their Relation to the Feeling of Warmth" by F. C. Houghten and Paul McDermott; "A Study of Summer Cooling in the Research Residence at the University of Illinois" by A. P. Kratz and S. Konzo; and "Summer Cooling Operating Results in a Detroit Residence" by J. H. Walker and G. B. Helmrich.

The University of Illinois research residence is a frame house with no extra insulation and no weather-stripping. It is located in Urbana, Ill. Three rooms on the first floor, three on the second, and connecting halls were cooled in the research project last summer, making approximately 14,170 cu. ft. of cooled space.

The total calculated heat gain, exclusive of sun effect, was 33,500 B.t.u. per hour for an indoor-outdoor temperature difference of 20° F. corresponding to the hottest summer day. Since the kitchen was not used for cooking, no heat was introduced from that source.

Ice Used in Cooling

Ice was used as the cooling medium because the weight of ice meltage could be determined conveniently, no other consideration being given to the relative merits of cooling by ice or mechanical refrigeration.

Ice water was pumped from the bottom of the ice-melting tank and passed through helical finned type cooling coils (total cooling surface 473 sq. ft.). Coils were connected in series, the water flowing in an opposite direction to that of the air to comprise a counter-flow arrangement. After passing through the coils, water was returned to spray heads in the top of the ice-tank and sprayed over the ice.

Temperatures Recorded

Ducts of the existent mechanical warm air heating system were used to distribute cooled air to the various rooms, and to return the warmed air to the cooling coils and fan for recirculation. Part of the return air was by-passed through the cooling coils, control of the system being obtained by a modulating by-pass damper operated from a room thermostat.

During the whole summer from June 1 to Oct. 1, 1932, records were made of outdoor temperatures, temperatures on each floor and in the basement, roof surface temperature, indoor and outdoor relative humidities, and times of starting and operating the cooling plant.

The cooling plant was started when the effective temperature indoors rose to 75°, regardless of the outdoor temperature. This starting point was reached when the indoor dry-bulb temperature reached a value between 78° and 82° F., depending upon the relative humidity.

After the plant was started, the dry-bulb temperature was maintained practically constant until the outdoor temperature fell to about the same value, when the plant was shut down. Owing to the reduction of relative humidity after the plant had been in operation for about 1½ hours, the resulting effective temperature was around 72° for the operating dry-bulb temperature of 78° to 82° F.

A total of 43.3 tons of ice were used during the four-month cooling season, the maximum hourly rate of ice meltage being 220 lbs. The maximum meltage for any 24-hour period was 4,243 lbs. There were 62 days last summer when the maximum outdoor temperature reached 85° F. in Urbana.

Electrical inputs to the fan and pump motors were practically constant because total volumes of air and water circulated were not varied. The fan motor consumed ¼ kw., the pump motor 1¼ kw. The pump's power requirement was somewhat high because a pressure of 23 lbs. per sq. in. was used in the spray heads of the ice tank in order to secure a fine enough spray to prevent formation of craters in the ice which would affect the ice-melting determinations.

Condensate Measured

Condensate on the coils was collected and measured regularly. The average dehumidification load ranged from 3,000 to 8,000 B.t.u. per hour, averaging about 4,000 B.t.u. per hour. This constituted approximately one-fifth of the total load.

A chart was presented on variations in cooling load with outdoor air temperatures, and indicated that the cooling load is not directly proportional to the difference in temperature, but with a fixed differential increases as the outdoor temperature increases.

Tests were run with awnings on all east, south, and west sides of the house. Comparison of refrigeration requirements with and without awnings indicated that both sensible and total cooling loads were reduced in the order of 22 per cent with awnings. In arriving at this figure, correction was made for the basement heat loss, which obviously was not affected by awnings. Awnings also reduced the period of maximum cooling load from about 6 to 2 hours.

Conclusions from Tests

Subect to limitations of test conditions, the following conclusions were drawn:

Ducts and registers of a central forced-air heating system can be successfully adapted as a distributing system for cooled air in the summer without material alterations.

There is no tendency for a pool of cold air to collect near the floor if the temperature of the air entering the room through the registers is not lower than 60° F.

Baseboard registers can be used without objectionable drafts resulting if the velocity of the air at the register face is below 300 ft. per minute, although wall registers located seven ft. above the floor are preferable to baseboard registers.

A building of the type of the research residence may require the equivalent of two tons of ice in 24 hours including the basement load on days when the maximum outdoor temperature reaches 100° F. if an effective temperature of approximately 72° is maintained indoors.

An effective temperature somewhat higher than 72° may be satisfactory for residence service, in which case more conservative results for the cooling load can be obtained.

Awnings Reduce Load

Awnings at all windows in east, south, and west, exposures may result in savings of from 20 to 30 per cent in the required cooling load.

The cooling load per degree difference in temperature is not constant, but increases as the outdoor temperature increases.

The heat lag of the building complicates the estimation of the cooling load under any specified conditions, and makes such estimates, based on the usual methods of computation, of doubtful value.

The seasonal cooling requirements are extremely variable from year to year, and the ratio of the degree-hours exhibited by any two seasons occurring within a 10-year period may be as high as 7.5 to 1. Hence an average value for the degree-hours per season is comparatively meaningless.

Walker Reports Project

J. H. Walker was next on the program with a report of a summer cooling project conducted last summer by Detroit Edison Co. in an eight-room residence in Birmingham, Mich. This installation was described briefly on page 9 of the Jan. 18 issue of ELECTRIC REFRIGERATION NEWS.

Mr. Walker pointed out that this cooling project differs from that at the University of Illinois in that only a moderate degree of cooling was attempted, in order to see how economically it could be done.

Ice was the cooling medium, an ice-melting tank being placed underground adjoining the basement wall, with connections to a standard automobile radiator which was installed for a cooling coil in the duct of the warm air heating system.

When artificial cooling was done, the system employed complete recirculation, no outdoor air being used. Provision was made, however, to use outdoor air during the many nights and occasional days in summer when outdoor air is cooler than indoor air.

The system was operated freely, with little regard to economy during the early part of the summer, with the result that on days when outdoor temperatures reached 95° F., ice consumption varied up to 2,500 lbs.

Indoor Temperature 75°

During this period indoor temperatures of 75 to 77° F. were maintained. Although this condition seemed ideal to a continuous occupant, Mr. Walker reported, to a person entering or leaving, the temperature difference was noticeably uncomfortable.

"It soon became apparent that there was a very wide range of temperatures that could be maintained in the house, which were considered satisfactory, and it was further evident that to maintain temperatures as low as 76 or 78° F. on the hottest days required an ice consumption that was out of all proportion to the slightly increased comfort obtained," he said.

Accordingly, a more moderate degree of cooling was done during August, with a greatly reduced ice consumption. The rate of ice consumption was limited by covering part of the coil with a sheet metal baffle, and by throttling the flow of water through the coil.

500 Lbs. Ice Daily

Mr. Walker declared that this research project demonstrated that with a moderate ice consumption, from 500 to 700 lbs. per day, a satisfactory degree of comfort can be obtained.

He mentioned the possibilities of using city water for cooling when its temperature is relatively low, and also the method of cooling the first floor of a house during the day and the second floor at night, in order to reduce costs further.

Next on the day's program was R. M. Palmer of New York City who gave a paper on "Corrosion as Related to Air-Conditioning Equipment." He pointed out that municipal water supplies vary widely in chemical characteristics, and that a thorough analysis in a community where air-conditioning equipment is to be installed will help to minimize depreciation and reduce operating efficiencies from corrosion. Chemical conditioning of water will almost always prevent undue corrosion, he declared.

Lewis, Offner Present Papers

S. R. Lewis' paper on "Air Supply, Distribution, and Exhaust Systems" described the various methods of introducing, circulating, and withdrawing air from rooms being heated or cooled. Numerous lantern slides illustrated the points brought out in his paper.

"Cow Barn Ventilation" was treated by A. J. Offner of New York City. His explanation of ventilation systems which have been developed especially for cow barns drew forth considerable discussion from other members of the society who have attempted such installations.

Air Infiltration

The next paper, entitled "Air Infiltration Through Steel Framed Windows" by D. O. Rusk, V. H. Cherry, and L. Boelter, all of the University of California, Berkeley, Calif., described research on that subject at their university.

Briefly, the study indicated that a variation as great as 1400 per cent may be expected in the infiltration of well-constructed windows, that it depends largely on the method of closing and latching, and that tests on felt weather-stripped windows vary widely according to air humidities.

Wednesday's session was devoted entirely to consideration of steam heating problems, the following technical papers being presented: "Flow of Condensate and Air in Steam Heating Returns" by F. C. Houghten and Carl Gutberlet, and "Condensate and Air Return in Steam Heating Systems" by Mr. Houghten and J. L. Blackshaw.

CHAPIN REPORTS TREND OF AIR CONDITIONING

DETROIT—Air conditioning, new adaptations of electric refrigeration, and improvement of the speed, safety, and comfort of railway carriers are new major trends in industry and mass production, according to indications gained from a survey made by the patent office, Roy D. Chapin, secretary of commerce, told Detroit's industrial and business leaders at a meeting here recently.

Mr. Chapin was guest at a testimonial luncheon held in his honor by the Detroit Chamber of Commerce and the Detroit Adcraft Club.

AIR CONDITIONING

BOULDER DAM TEST ROOMS CONDITIONED BY YORK EQUIPMENT

YORK, Pa.—To help solve a number of engineering problems involved in the design of concrete structures for Hoover dam at Las Vegas, Nev., two concrete testing laboratories have been established in Denver by the government, and equipped with refrigeration and air-conditioning equipment by the York Ice Machinery Corp.

Because Hoover dam will be larger than any heretofore built, engineers of the bureau of reclamation, Department of Interior, require much new data on the properties of concrete before completing the final design of the dam. These data are being assembled in the two air-conditioned laboratories in Denver.

In each of the two laboratories—one in the Federal building, and the other in a rented building on Welton St.—York refrigeration and air-conditioning systems automatically produce temperatures and humidities which assimilate those conditions actually encountered on the construction work.

In the Federal building laboratory, there are four concrete curing rooms: room No. 19, 32 ft. 5 in. by 8 ft. 7 in. by 8 ft. high; room No. 19G, 22 ft. 7 in. by 7 ft. 8 in. by 8 ft. high; room No. 19E, 10 ft. 6 in. by 8 ft. by 7 ft. 6 in. high; and room No. 19F, 12 ft. 6 in by 10 ft. 6 in. by 7 ft. 6 in. high. The Welton St. laboratory has one curing room which is approximately 35 ft. square by 8 ft. high.

These rooms are used to cure the concrete samples varying in size from 8 in. in diameter by 16 in. long to 36 in. in diameter by 72 in. long.

Fog Humidity

In such a large mass of concrete as will be poured in the Hoover dam, the concrete will remain practically saturated until it has set. So that the test specimens will be cured under conditions which approach as nearly as possible the actual conditions which will exist in the dam, the concrete curing rooms can be maintained at a temperature of 70° F. and a relative humidity of 100 per cent. This is standard laboratory practice.

The humidity is maintained high enough to keep a dense fog in the rooms at all times. The laboratory men term this condition "fog humidity."

In the Federal building laboratory, rooms 19, 19G, and 19F are maintained at 70° F. and 100 per cent humidity. Room 19E is special and is maintained at 70° F. and an optional humidity of between 50 per cent and 100 per cent. The allowable variation is 2° F. in temperature and 3 per cent in humidity, above or below the required conditions.

Federal Building Laboratory

In the Federal building laboratory, tests are primarily to determine the strength of concrete. The tests are being run on various kinds of cement and also on various mixes, using the different sizes of specimens for each mix.

Each specimen is carefully marked, and after it has been properly cured in one of the curing rooms it is tested for tensile strength, modulus of elasticity, etc. The results of these tests are recorded together with the material used, and a comparative check is made with mixes of various ingredients.

The laboratory is equipped with three testing machines, the largest being rated at 4,000,000 lbs. This machine is capable of breaking the largest sample, which is 36 in. in diameter by 72 in. long. There is also some special equipment which measures the amount of water which will pass through concrete when applied under various pressures.

Dissipation of Heat

Tests on some of the dams which have already been constructed indicate that it takes a long time to dissipate the heat generated by the cement, engineers report. In some of the test tunnels of existing dams, temperatures well above 100° F. have been encountered several years after completion of the dam.

Inasmuch as the concrete will continue to contract until all the heat has been removed, engineers are fearful that the grouting between the various sections will fail unless practically all of the heat is removed before applying the grouting. It would be out of the question to wait for this heat to be removed without resorting to some artificial means of removing it.

The Hoover dam is larger than any constructed in the past and the government engineers have given serious consideration to the question of removing this heat. It has been definitely decided that it is necessary to resort to refrigerating the entire mass of concrete to be poured.

Original calculations show that it will require approximately 1,000 tons of refrigeration per day to do the job. The most feasible plan of applying this refrigeration is to install pipes in the concrete as it is poured and to circulate cold water through the pipes until the heat is removed.

Welton St. Laboratory

In the Welton St. laboratory tests are being conducted to determine the thermal characteristics of concrete. Specimens are prepared in the same manner as at the Federal building laboratory, and from the results of the tests conducted, will be determined specific heat, conductivity, temperature rise in concrete, etc.

Of particular interest is "the temperature rise in concrete," which is due to the heat generated by the cement. It is this heat which must be removed and in order to calculate the amount of refrigeration required to remove it, definite and accurate information on the amount of heat generated must be available.

In this laboratory, a large part of the equipment has been designed especially for these tests by the engineers of the Bureau of Reclamation. These engineers have also built and calibrated a good many of the instruments which will be used.

Air-Conditioning Equipment

Two separate air-conditioning systems, one for each laboratory, were installed by York to maintain conditions in the curing rooms, as previously specified.

For the Federal building laboratory, three rooms require cooling, heating, and humidifying; the fourth requires in addition, dehumidifying. The automatic control system is required to operate in all seasons and with all variations in room heat loads, without adjustment.

The refrigerating equipment consists of a standard York self-contained unit, operating on float-controlled air-washer coils in each room. Each coil is equipped with a suction pressure regulating valve and a magnetic liquid valve; coils in rooms 19 and 19G also have magnetic suction line valves.

Heating is effected by means of electric strip heaters in the outlets of the air-conditioning units. The special ceiling type spray units include a complete assembly of air washer, refrigerant coils and control, electric heaters, pump, and fan. Excess humidity is supplied by means of compressed air type of atomizing nozzles.

In the rooms which are to be maintained at 70° F. and 100 per cent relative humidity, the suction pressure regulators are set to maintain 70 lbs. pressure in the refrigerant coils. In room 19E, the suction pressure is varied to give the desired dew point for the condition which is to be maintained. There is also a suction pressure switch at the machine which controls the two-speed motor starting switch.

When the suction pressure is above 40 lbs. at the machine, it will operate at high speed, and when the suction pressure at the machine drops to 40 lbs. or below, it will operate at low speed.

Control Diagram

The control diagram above shows the automatic control devices furnished. The following brief explanation will help to make clear the function of each device shown on this sketch: "P" is a hand starter controlling motor driving the pump on the spray type unit. "F" is a hand starter controlling fan motor on the unit.

While the room is in use, the pump and fan are operated continuously. The automatic devices are operated with compressed air at 15 lbs. pressure. The air compressor which furnishes this air also supplies air at 60 lbs. pressure to the atomizers.

With room temperature of 70° F., thermostat "T" will maintain pressure in the control line of approximately 5 lbs.

With rising temperature in the room the thermostat increases pressure in the control line; at 7 lbs. switch "G" closes circuit and opens magnetic valves in suction and liquid lines to the air-conditioning unit. At the same time motor control relay "H" closes and calls for refrigeration.

As the room is cooled down to 70°, the pressure in control line drops to 5 lbs. and switch "G" opens circuit, closes magnetic valves and opens the refrigerating machine circuit. If the room temperature drops below 70° F., the pressure in control line drops and at 3 lbs. pressure switch "E" closes circuit and through magnetic switch "D" turns on strip heaters in the air-conditioning unit.

As the temperature rises, the pressure in the control line rises and at 5 lbs. pressure, switch "E" opens circuit and shuts off heat.

With four rooms, any one requiring refrigeration will start the compressor through relay "H", which will operate as long as a single room needs cooling. When only one or two rooms need refrigeration, the compressor operates on low speed as described previously.

In the optional humidity room 19E, the automatic control equipment is the same as shown on this diagram and the operation will be the same, when this room is maintained at 100 per cent humidity. When a humidity less than 100 per cent is desired, additional controls are required, with one set for 50 to 70 per cent and another for 70 to 95 per cent humidity.

A dew-point thermostat or a wet-bulb thermostat control the refrigeration, and the dry-bulb thermostat controls the strip heaters to prevent the dry-bulb temperature from getting too low.

The recording wet- and dry-bulb thermometer charts show how consistent the control system has been. In the 70° to 100 per cent humidity rooms, it is scarcely possible to distinguish between the wet- and dry-bulb temperatures, and the variation from 70° F. is very slight. The chart showing conditions in the 70° to 50 per cent humidity room also demonstrates close control, York engineers report.

Special Control Equipment

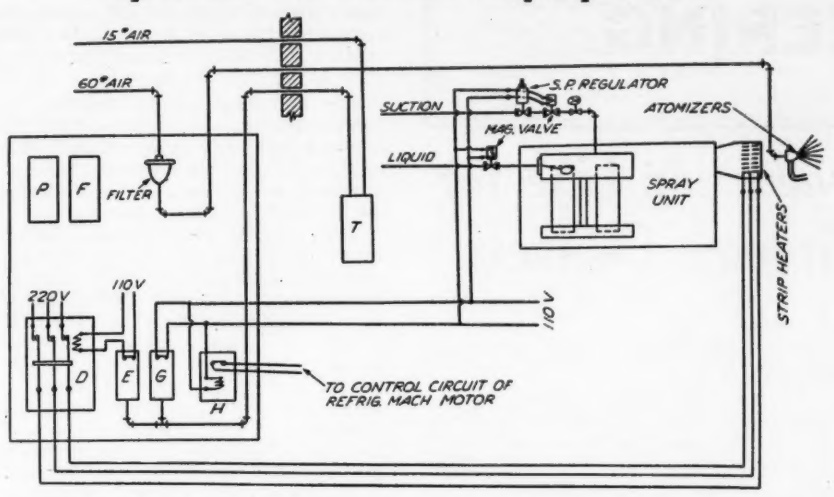


Diagram of control system built by York (see description below).

NEW YORK A.S.R.E. HEARS PLANT VALUATION TALK

(*Concluded from Page 1, Column 5*)

Harry Harrison, temporary chairman of the meeting, opened his speech by saying that, during the expansion decade that closed with 1929, manufacturers felt that the consumer should pay the cost of constantly adding to and modernizing factories. Now that plant capacity is, in many cases, much higher than plant output, the public refuses to pay the overhead of maximum production.

"Otherwise the ratio between book assets and gross returns will become so high as to make refinancing or insurance a factor burdensome enough to cripple the business.

"In determining operating costs," Mr. Olson said, "you should include a reasonable charge for taxes, insurance, maintenance, and depreciation only on the properties used and useful in the present production of goods to go to the consumer; it is not reasonable to expect the consumer to pay, in your retail price, returns to you on equipment that is obsolete.

This problem, he stated, was of particular interest to the ice and cold storage industry, where the investment in fixed assets is relatively large, and the working capital relatively small. Technocracy, Olson claimed, has dramatized—perhaps over-dramatized—this problem of an industry in which the fixed capital continues to increase, and the payroll to decrease.

At this point, one of the members rose to protest against that statement being applied to the refrigerating industry. Mr. Olson, the member said, was only considering the ice and cold storage branch. "Taken as a whole, more men have gone to work for the electric refrigeration companies than have been discharged by the ice plants," the objector declared.

This was true, Olson admitted. But many of the men in the electric refrigeration industry had gone out of the first line of industry, namely production, and gone into the second and third lines, servicing and sales. This is an example, he said, of the situation that the technocrats deplore; they consider selling, in an ideal world, unnecessary.

In advocating the purchase of new equipment, the speaker concluded, the engineer's policy should depend on the type of equipment to be purchased.

In the case of standard equipment, which may be picked up cheaper now than in more prosperous years, the engineer may consider the purchase wise if the new machinery will pay for itself in five years, or even longer. But in the case of special equipment, repayment of installation cost should be consummated in two or three years.

Your job is to preserve food...

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JUST as modern electric refrigeration protects food against the action of destructive bacteria, Parker Rust Prevention protects electric refrigerator cabinets and other ferrous metal parts against the ravages of rust.

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Parker literature summarizes the findings of the Parker research staff. It describes their more important findings in 17 years of research, supported by extensive practical experience in rust-proofing and finish improvement of iron and steel products in all industries. Copies will be sent on request to interested technical men and manufacturers.

PARKER RUST-PROOFING *processes*

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ENGINEERING

Briggs Revamps Production Line for Manufacture of Grunow Cabinets

By John T. Schaefer

DETROIT—In preparation for production of the new Grunow cabinet which the Briggs Mfg. Co. will make this year, extensive changes are being completed this month in the refrigerator cabinet-making division of the Briggs plant on Meldrum Ave.

Principal change in the production set-up is revision of oven equipment to bake on duPont's new cabinet finish "Dulux." Improvements have also been made in both gas and electric welding fixtures, in further motorizing of material-handling operations, and in making the production system more progressive, according to Bertram Skelly, factory manager.

Greater flexibility will be attained, congestion reduced, and back-tracking practically eliminated with the new production lines, Mr. Skelly claims.

A large manufacturer of automobile bodies, Briggs entered the refrigeration field a little over a year ago by introducing novel ideas in stylish cabinet design. Grunow Corp. of Chicago is the first refrigerator manufacturer to adopt a Briggs-styled cabinet, although the Briggs company last year fulfilled a contract to manufacture one model of Westinghouse cabinets.

Higher baking temperatures and greater cleanliness of application are required for the new Dulux finish—for which a porcelain-like appearance and greater durability than conventional lacquers are claimed by the maker.

To this end, new oil-heated ovens have been installed, and all air forced into the glass-enclosed paint-spray booths is both cleaned in oil filters and conditioned to a pre-determined temperature. Air fed into the centralized battery of oil furnaces is also filtered through oil.

In order to prevent leakage of untreated air into the spray booths, a positive air pressure is maintained in them. The booth in which the first coat of Dulux is applied, for instance, is supplied with 35,000 cu. ft. of air per minute, and 30,000 cu. ft. are drawn out through the exhaust. The remaining volume of air is forced out through openings in the booth, keeping out external dust.

The exhaust of each spray booth is provided with a new water filter so that particles of the finish are trapped instead of being discharged to the outside of the building.

Mr. Skelly estimates that the new production set-up will "comfortably get out" 500 cabinets in one working shift. Total floor area devoted to the refrigeration division of the plant is approximately 250,000 sq. ft.

The overhead conveyor chain, which carries parts to and through the various operations, is 6,100 ft. long. It will handle parts for 600 cabinets in process. From 12 to 14 hours are required from the time first forming operations are made on sheet steel, until the cabinet is finished, the refrigerating unit installed, and the refrigerator is crated for shipment.

The conveyor has a Reeves chain drive, powered by electric motors. A bank of indicator lights at each of four key points in the system will show where the conveyor is being held up when production is held up.

The general plant layout is much like that of last year's, but production follows straighter lines in individual departments. Thus in the metal-working department on the first floor, sheets of steel start at the square shears and move progressively to presses, then brake machine, to a group of re-arranged gas welding fixtures.

First operations in metal finishing are grinding and sanding of welded joints and other uneven places in the metal. Then the cabinets are routed through a spray booth where they are washed with anti-rust solution, and dried for 20 minutes at 225° F. in the dry-off oven.

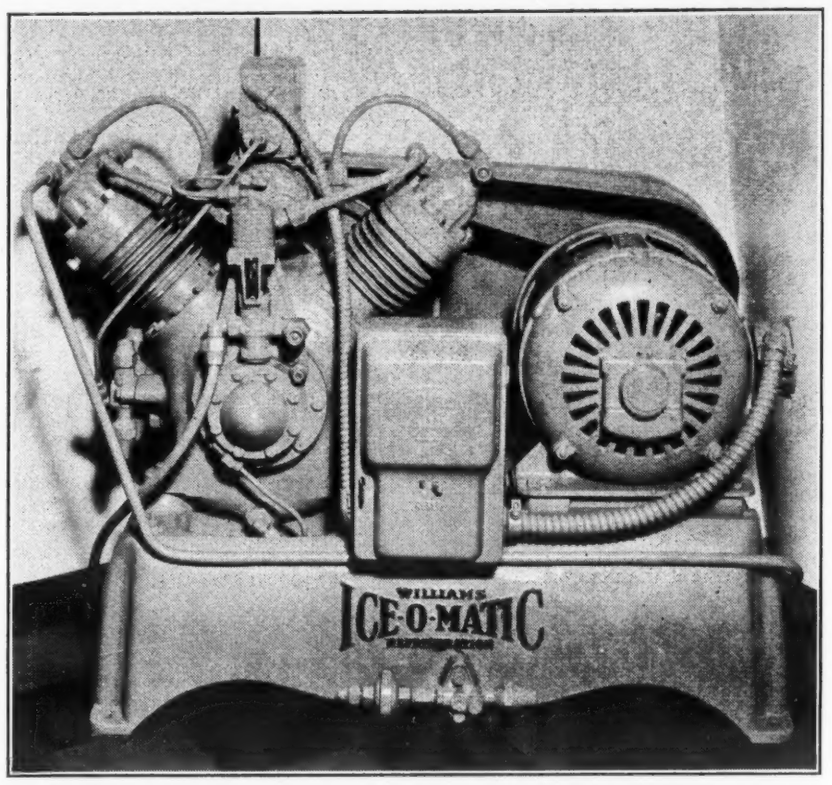
Next the primer coat is sprayed on, baked for an hour at 350° F., and air-cooled on its trip to the next operations of hand sanding, wiping, and cleaning.

The first coat of Dulux is applied by workmen in a glass-enclosed booth with the wet type of exhaust filter, and baked for an hour at 325° F. Again comes a hand sanding, and the cabinets get their second coat of Dulux. This is baked for two hours at 260° F.

The long cooling and inspection line leads to the assembly division where insulation, food chambers, refrigerant tubing, doors, hardware, etc. are installed.

A separate department of the plant is manned by Grunow workmen. Here the Grunow condensing unit is installed, the finished refrigerator tested, and refrigerators crated for shipment. Testing equipment provides for a running test on 250 refrigerators at one time.

New Ice-O-Matic Compressor



New Williams Ice-O-Matic commercial 4-cylinder compressor is powered by a 3- or 4-hp. motor and is water cooled.

Strike Shuts Plant

DETROIT—After a small number of employes went on a strike because of a wage dispute, the Mack Ave. plant and the Highland Park plant of the Briggs Mfg. Co. here, were shut down last week.

Approximately 200 of the 4,000 employes were responsible for the strike at the Mack Ave. factory, and the same small percentage of the 2,500 employed at the other plant were involved.

RAILROADS STUDYING CRATING METHODS

NEW YORK CITY—The Freight Container bureau of the American Railway Association is completing a preliminary report outlining problems encountered by mechanical household refrigerator manufacturers in crating and loading refrigerators for shipment by rail, and will submit the report for manufacturers' consideration soon.

T. E. Marks, one of the bureau's engineers, has secured information to be presented in the report by interviews with 24 refrigerator manufacturers, calls on several large consignees in New York City, and examinations of shipments at railroad stations and major transfer points.

If, after considering this material, manufacturers indicate a desire that further study of crating and loading be made, the bureau's engineers will continue their observations in manufacturers' packing and shipping departments, and will later issue a final report in which specific recommendations are made for efficient and standardized crating and loading methods.

Before being officially issued, the final report of recommendations will be again submitted to the manufacturers, according to Edward Dahill, chief engineer of the Freight Container bureau. Similar practice is followed in the bureau's study of crating and loading problems of other products.

This service, says Mr. Dahill, involves no cost to manufacturers, as the bureau's activities are supported directly by all railroads in the United States and Canada to serve both carriers and shippers by developments of standard packing and loading practices.

Refrigerator manufacturers visited by the bureau's representative prior to preparation of the preliminary report are as follows:

All-American Mohawk Co.; Apex Electrical Mfg. Co.; Bohn Refrigerator Co.; Copeland Products, Inc.; Crosley Radio Corp.; Domestic Industries, Inc.; Frigidaire Corp.; General Electric Co.; Gibson Electric Refrigerator Co.

Grigsby-Grunow Co.; Ilg Electric Ventilating Co.; Illinois Moulding Co.; Kelvinator Corp.; Leonard Refrigerator Co.; Maine Mfg. Co.; Montgomery Ward Co.; Norge Corp.; Perfection Stove Co.; Sears, Roebuck & Co.; Servel Sales, Inc.; Stewart-Warner Corp.; Trupar Mfg. Co.; Universal Cooler Corp.; Westinghouse Electric & Mfg. Co.

In a statement issued with his announcement that the preliminary report is now being prepared, Mr. Dahill said, "Any manufacturer desiring advice or assistance in his crating and loading problems, and who has not already been visited by an engineer of this bureau, may feel free to call on us for assistance."

WILLIAMS DEVELOPS 4-CYLINDER MACHINE

(*Concluded from Page 1, Column 1*)

nished in the water cooled type only. Water from the combination condenser and receiver is discharged through the cylinder head, cooling this part of the compressor.

Control and relay switches are furnished and are mounted on the compressor. All electrical connections are made to the motor and controls thus leaving only the line wiring job to be done at the time of the installation.

The Penn Electric type LS pressure control and automatic water valve are standard equipment on new models.

The lubrication system is of the forced feed type, through a drilled crankshaft to the connecting rods. Pistons and wrist pins are lubricated by the spray from the crank throws. The oil pump is directly connected to the end of the crankshaft.

The crankshaft is of one-piece, drop-forged steel, hardened and ground to size. Connecting rods and pistons are of alloy iron. There is a suction valve of the spring cushioned poppet type in the piston head. The discharge valve is of the steel reed type.

Water control is adjustable. Factory setting is for 110 lbs. condensing pressure.

The Oil-O-Matic commercial line now consists of ¼-, ⅓-, ½-, ¾-, 1-, 2-, and 3-hp. models offered in six different sizes of compressor bodies.

All models with the exception of the two 4-cylinder jobs are furnished with either air-cooled or water-cooled condensers, or with a combination air-cooled and water-cooled condenser.

Where the combination condenser is employed, the water cooling is called into use only during abnormally hot weather or during emergencies. This combination condenser, Williams engineers point out, improves efficiencies in communities where a high water rate is prevalent.

FRIGIDAIRE EQUIPMENT USED IN TESTING OILS

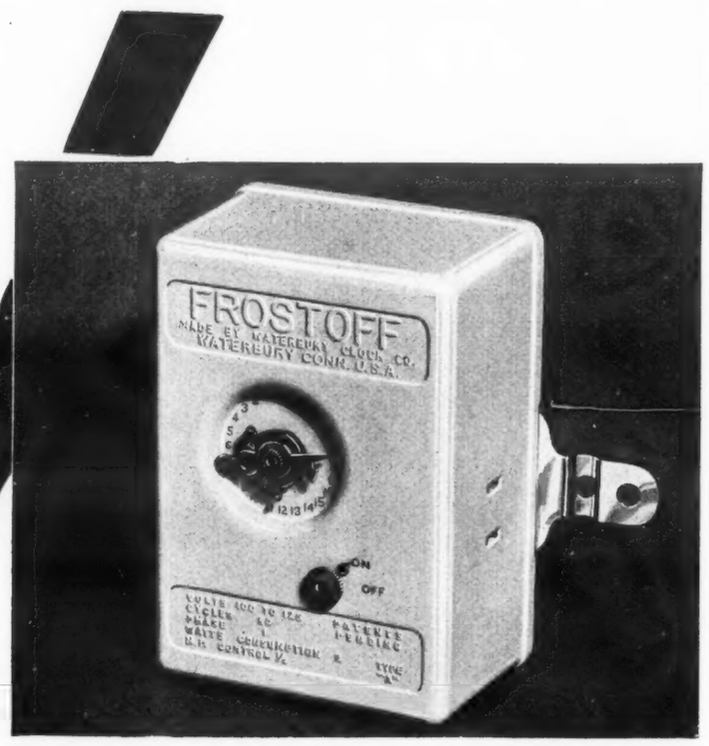
PITTSBURGH—Adaptation of the principles of household refrigeration to the extraordinary temperature demands of an oil testing laboratory has been successfully achieved in equipment installed in the Pittsburgh testing laboratories of the Atlantic Refining Co. by Frigidaire Corp.

The refrigeration equipment provides simultaneously in different compartments, temperatures ranging from freezing down to -60° F. It is used for testing motor lubricants for the severe climatic conditions under which automobiles and airplanes might be called upon to operate.

A storage chest, in which oils to go under test are placed preliminary to the actual test runs, is held at 32° F., according to W. S. Dingfelder, refrigeration engineer who worked out the equipment. Adjacent to this is a cabinet consisting of two sections insulated with 6 in. of cork. One section has six compartments surrounded by brine carried at 15° F. The second section has four sleeve compartments held at -25° F.

An individual compartment 10 by 2 in. inside dimensions is held at -60° F. for the final testing of lubricants. The equipment is refrigerated by a standard commercial refrigeration machine with an ASRE rating of four-tenths tons.

NEW



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Every one of the 4 million electric refrigerators now in use needs "FROSTOFF", the Automatic Defroster. Keeps coils clear of ice—makes removal of ice trays easy—increases efficiency of freezing unit—saves electricity—and saves you many inconveniences.

It is a simple fool-proof device.

1. Plug it into your present wall socket.
2. Plug refrigerator into "FROSTOFF".
3. Set the dial.
4. And your defrosting nuisance is forever over.
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RETURN THIS COUPON TODAY BOND

Never in the history of electric refrigeration has such a revolutionary idea been presented to you—such an opportunity to make real profits. It's the chance of your lifetime to sell a much needed electric refrigerator accessory—at a low price—and long PROFITS. GET THE COMPLETE "FROSTOFF" SELLING PLAN TODAY.

BOND ELECTRIC CORPORATION
Jersey City, N. J.

Please send complete information about the new BOND "FROSTOFF" unit.

Dealer's Name .....

Address .....

City ..... State .....

Signed .....

ENGINEERING

MAJESTIC CHANGES WALL CONSTRUCTION

(*Concluded from Page 1, Column 5*)

as much as possible, and where possible the joints interlock. All seams are filled with a sealing compound. Food compartment is further protected by asphalt-coated paper ironed into place with electric irons.

Majestic's "Auto-Reset" protector is a device consisting of a combination electrical overload trip and high pressure cut-out switch. The mechanism is built up as a part of the control panel.

Overload trip is a bi-metal strip anchored at one end and heated by a resistance grid connected in series with common lead to the motor. In the event of an electrical overload, the free end of the bi-metal strip raises sufficiently to actuate an over-center switch which opens both sides of the line, stopping the compressor.

When the motor has been idle for a sufficient length of time, the bi-metal strip will cool, and return to its normal position, closing the auto-reset switch.

Should the overload condition still exist, explains Mr. Haimbaugh, the electrical overload will continue to cut off and on until the condition in the line has corrected itself, or the pressure in the compressor has been increased sufficiently to cause the high pressure cut-out to function.

This high pressure cut-out is a bellows actuated by the pressure in the system to move a plunger against a calibrated spring. When the pressure reaches a predetermined value, a latch disengages the pivoted toggle-arm.

A spring behind the toggle-arm causes the pivots of the over-center switch to be lowered sufficiently to open the auto-reset switch contacts.

'Stay-Kold' Defroster

The "Stay-Kold defroster is an automatic defrosting feature incorporated in the thermostatic control. When defrosting is required, the indicator of the control is turned counter-clockwise to the position marked "D".

At the defrosting position, the switch mechanism actuates an auxiliary spring in conjunction with the range spring to change the cut-in temperature of the evaporator to approximately 40° F.

This change does not affect the cut-out temperature, says Mr. Haimbaugh, with the result that the unit continues to cycle with the evaporator defrosting between cycles.

Conventional Type Unit

Model 450, the refrigerator equipped with a conventional type unit, has a net food storage capacity of 4.8 cu. ft. and a shelf area of 10.7 sq. ft. It has 2 in. of insulation throughout. Its two ice trays supply 42 cubes at one freezing. The unit in this model is guaranteed for one year.

Smallest of the deluxe line is model 500, with a net capacity of 4.46 cu. ft., and a shelf area of 9.68 sq. ft. It employs 2⅛ in. of insulation throughout. Its two 21-cube ice trays supply 4 lbs. of ice at a freezing. This model's exterior finish is lacquer.

Model 700 has a net food storage capacity of 6.1 cu. ft., a shelf area of 13.05 sq. ft. Insulation is 2½ in. thick. Four 21-cube ice trays will make 8 lbs. of ice at one freezing. Exterior finish is lacquer.

Models 700, 900, 1200

Net capacity of model 900 is 8.2 cu. ft., and its shelf area is 16.4 sq. ft. Three inches of insulation are used throughout. A two-door model, this refrigerator has five ice trays with a total of 105 cubes, 10 lbs. of ice. Its exterior is finished in lacquer.

Model 1200 has a net food storage capacity of 10.28 cu. ft. and a shelf area of 18.8 sq. ft. Its door has 3½ in. of insulation, its walls 2½ in., and its top and bottom 3 in. Six ice cube trays freeze 170 (15 lbs.) cubes at one freezing. The finish is porcelain. This is another two-door model.

Large Deluxe Model

Largest of the deluxe line is model 1400, another porcelain model. This refrigerator's net capacity is 12.52 cu. ft., its shelf area being 23.25 sq. ft. Its ice cube production is the same as for model 1200, as are the various thicknesses of insulation used in its construction.

Refrigerating units of all models in the new deluxe line are covered by a three-year guarantee.

January Sales Up

WESTERN UNION

Editor, Electric Refrigeration News.

January Majestic refrigerator sales will exceed 300 per cent increase over January 1932 Stop Average monthly increase for past four months better than 400 per cent resulting in our starting production 60 days earlier than in previous year.

John F. Ditzell, Grigsby-Grunow Co.

Detroit Engineers Talk Standards

(*Concluded from Page 1, Column 5*)

progress has been slow.

First of the speakers was H. G. Chamberlin, director of laboratories, Copeland Products, Inc. Mr. Chamberlin outlined the various points on which test methods of the various manufacturers disagree, and told how his own company has established a performance standard.

"In order that performance tests fulfill their function, they should be simple, should include no elements which make duplication of the test difficult, and they should be equally significant and fair for all makes of refrigerators," he said.

He concluded by defining a properly operating refrigerator as one which, with one setting of the control adjustment, will maintain an average box temperature of not over 50° F. in a 95° room and a bottom box temperature of not less than 35° F. in a 75° room; will operate not over 50 per cent in a 95° room; will cycle in a 110° room; and with the control in the position of coldest operation, will freeze 2½ to 3 lbs. of ice in 3½ hours or less.

These he gave as minimum requirements, the cycling specification in a 110° room, for instance, being easily met by most refrigerators, he said.

In order to determine the proper lowside and highside equipment for a particular commercial installation, it is primarily necessary to determine the heat load, A. E. Knapp, commercial engineer for Kelvinator, pointed out in his talk.

Heat Leakage Loads

Present methods of determining the heat leakage load are fairly accurate, Mr. Knapp stated, but there are a number of discrepancies in the methods used to determine the service load, he believes.

The practice most common at present, according to the speaker, uses the total exterior area as one of the factors in determining the service load.

However, in a commercial refrigerator 2 ft. deep, 3½ ft. wide, and 4 ft. high with a 3-in. wall the ratio of the cu. ft. capacity to the sq. ft. external area is about 1 to 4. In a 6x8x10-ft. cabinet with a 5-in. wall the ratio of the cu. ft. capacity to the sq. ft. external area is about 1 to 1.

"In the smaller refrigerator you are computing a greater heat load per cu. ft. of capacity than you get for a larger refrigerator, a difference which is not entirely adjusted by the difference in the thickness of the insulation. Therefore, if you use the external area as a factor, you penalize the smaller refrigerator," Mr. Knapp declared.

Mr. Knapp supported the belief that the service load is governed more by the cu. ft. capacity than by the external area of a commercial refrigerator, and offered as a basis of computing the service load "one complete air change for the cu. ft. capacity of the refrigerator from 90° F. temperature and 80 per cent relative humidity, to 35° F., equaling so many B.t.u.'s per cu. ft. of capacity."

Frigidaire Man Speaks

Next on the program was a speaker from out of town, J. L. Gibson, commercial engineering department, Frigidaire Corp., Dayton. Mr. Gibson described a new direct expansion calorimeter for determining refrigeration capacity, a recent development of Frigidaire engineers. Complete details of the new calorimeter were given in the June 15, 1932 issue of ELECTRIC REFRIGERATION NEWS, hence its description is omitted here.

William Higham, Universal Cooler engineer, outlined methods for calculating refrigeration requirements of air-cooling jobs, and gave standardized conditions for entering air and exit air.

The standards for entering air, as used by Universal Cooler engineers, are: 95° F. dry bulb temperature, 79° F. wet bulb temperature, and 73° F. dew point—a total heat of 41.5 B.t.u. per lb. of air.

Standards for outlet air, as set forth by Mr. Higham, are as follows: 80° F. dry bulb temperature, 67° F. wet bulb temperature, and 60° F. dew point—a total heat of 31 B.t.u. per lb.

Then, subtracting the total heat of exit air from that of entering air, he showed that 10.5 B.t.u. must be removed from each pound of entering air handled per hour.

Mr. Higham also presented the standard specifications sheet used by Universal Cooler engineers for estimating the total heat load for any given installation. The factors of heat-leak through walls of different constructions, through roofs, windows, electric lights, gas ranges, gas heaters, and other elements are given in this table (which was printed in the Aug. 10 issue of ELECTRIC REFRIGERATION NEWS).

The speaker also discussed the use of multiple commercial installations, and variable speed motors in air-conditioning applications of greatly varying loads.

ANNOUNCING

The New Equipment Number of Electric Refrigeration News

February 22

Unlike the automobile business, the electric refrigeration industry has no annual show or exhibition and no one would think of proposing such an expensive project in these times.

Now that electric refrigerators are being sold more and more upon eye appeal, the dealers and their salesmen need some way of obtaining a clear picture of new merchandise being offered for sale.

We have designated this issue as the New Equipment Number so that all manufacturers may concentrate the presentation of their new models in this one issue, explaining the new features in detail and illustrating the salable points of their new products.

For your advertising in this issue, we recommend "exhibition copy"—show your complete line and describe each model in detail.

Manufacturers of parts and supplies, accessories and related merchandise (articles to use with the refrigerator) are also invited to present their exhibits in the New Equipment Number.

Dealers are clamoring for merchandise which will sell, and they want the *reason why* it will serve the customer better. They are unusually interested today in all the various component parts of the complete refrigeration system.

This issue is designed to answer the questions which dealers are asking us. Here is an opportunity to spread a display of your products before all the important buyers in the industry just when they are trying to decide whose electric refrigerators are "*the best buy*" this year.

Features of other coming issues

March 8—Department Store Number
Extra distribution to merchandise managers and household appliance managers of department stores. Further details later.

March 22—Specifications Number
A new tabulation of complete specifications of all models made by all manufacturers. Further details later.

April 12—Air Conditioning Number
News of recent developments and a complete directory of equipment and manufacturers. Further details later.

Use this coupon to reserve space.

Electric Refrigeration News
550 Maccabees Bldg.
Detroit, Mich.

Date _____

Gentlemen:

☐ We want to exhibit our new products in your New Equipment Number, February 22. Rerserve space of _____ columns by _____ inches.

☐ Send us further details regarding the Department Store Number, March 8, the Specifications Number, March 22, and the Special Air Conditioning Number, April 12.

Company _____

Address _____

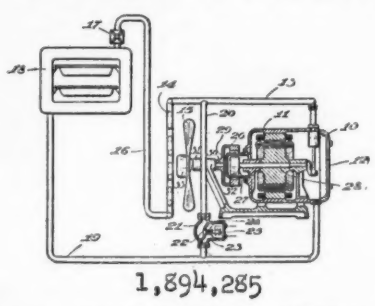
Signed _____

PATENTS

ISSUED JANUARY 17, 1933

1,894,285. REFRIGERATING APPARATUS. William F. Swezey, Swissvale, Pa., assignor to Westinghouse Electric & Mfg. Co., a Corporation of Pennsylvania. Filed Sept. 26, 1929. Serial No. 395,220. 10 Claims. (Cl. 62—4.)

1. In a refrigerating apparatus, a compressor, a driving motor therefor, a sealed casing enclosing the motor and compressor, an evaporator and a condenser, a rotating element outside the casing, a fan driven by said element for cooling the condenser, means for unloading the compressor at predetermined times, said means being controlled by said rotating element.



1,894,285

1,894,349. VAPORIZER. Frederick R. Erbach, Detroit, Mich., assignor, by mesne assignments, to The Guardian Trust Co., Cleveland, Ohio, as trustee. Filed April 26, 1928. Serial No. 272,918. 7 Claims. (Cl. 62—126.)

2. A refrigerant evaporating unit comprising a refrigerant receiving vessel, means for maintaining a constant quantity of liquid in said vessel, a plurality of horizontally disposed conduits communicating at one end with said vessel both above and below the liquid level therein, and means for supplying liquid from the receptacle to the remote ends of the conduits.

1,894,359. ABSORPTION REFRIGERATING APPARATUS. Kurt Nesselmann and Hans Brauer, Berlin-Siemensstadt, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin, Siemensstadt, Germany, a Corporation of Germany. Filed March 3, 1932, Serial No. 596,515, and in Germany, March 6, 1931. 15 Claims. (Cl. 62—119.5.)

1. In combination with an absorption refrigerating apparatus of the continuous type comprising a generator, a condenser, an evaporator and an absorber, an absorption solution circulating system containing said generator and absorber, an inert gas circulating system comprising said evaporator and absorber, a driving means for the circulation of said inert gas, a vapor agent for operating said driving means and a vessel exteriorly of said absorption solution circulating system and capable of being heated for generating said vapor agent, said agent being different from the agents coacting in the absorption apparatus.

2. The method of moving an inert gas to be circulated through the evaporator and absorber of continuous-operation absorption refrigerating apparatus which comprises generating the vapor from an agent different from the agents utilized for the operation of the absorption apparatus, employing said vapor to cause said gas circulation, condensing said vapor after it has caused the gas circulation and returning the condensate to the point where the vapor is generated.

1,894,441. LIQUID COOLER. Ralph Copp, St. Louis, Mo., assignor to Pevely Dairy Co., St. Louis, Mo., a Corporation of Missouri. Filed Nov. 2, 1931. Serial No. 572,595. 6 Claims. (Cl. 62—141.)

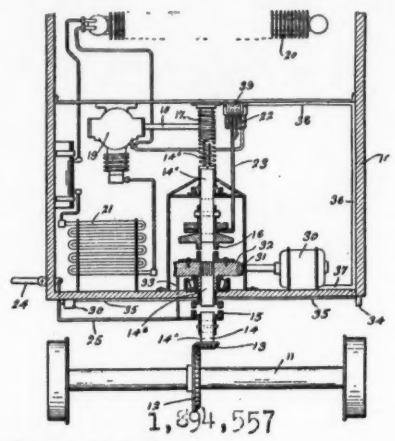
6. A cooler of the character described including a tank, a valved drain in the tank, an agitator in the tank, a refrigerating unit in said tank adapted to contain a fluid refrigerant and having a vertical exterior surface, means for causing all of the liquid to be cooled to flow upon said surface, and mechanism other than said agitator for forcing circulation of the fluid refrigerant through said refrigerating unit.

1,894,476. MEANS FOR DECORATING REFRIGERATED CONTAINERS. Ralph H. Strait, Ligonier, Ind., assignor to Hussmann-Ligonier Co., St. Louis, Mo., a Corporation of Delaware. Filed April 3, 1931. Serial No. 527,394. 1 Claim. (Cl. 40—140.)

A device of the class described, comprising a decorative body portion provided with an opening formed therethrough, a recess surrounding said recess, a shoulder within said recess, a display-receiving panel removably secured to said shoulder and disposed in said recess, and fastening devices for securing said display-receiving panel to said body portion.

1,894,557. REFRIGERATING APPARATUS. George H. Fassett, Ashtabula, Ohio. Filed April 30, 1931. Serial No. 534,013. 4 Claims. (Cl. 62—117.)

1. In a vehicle, in combination, a refrigerating compartment, cooling mechanism therefore, an operative connection between a rotating shaft of said vehicle and said cooling mechanism, means for disengaging said connection, secondary driving means for said cooling means, means for disengaging said secondary driving means, and connections between both of said disengaging means permitting connection of only one at a time.



1,894,557

1,894,638. METHOD OF REGULATING THE COOLING EFFECT OF A REFRIGERANT. Peter Schlumbohm, Berlin, Germany, assignor to The American Thermos Bottle Co., Norwich, Conn., a Corporation of Ohio. Filed March 16, 1931, Serial No. 523,107, and in Germany March 18, 1930. 2 Claims. (Cl. 62—170.)

1. The method of automatically regulating the cooling effect of cooling means, which comprises separating the cooling means from the room to be cooled by a closed space containing a suitable gas, and subjecting said gas to the action of an adsorbing medium whose temperature depends upon the temperature of said room, whereby said medium withdraws gas from said space when the room temperature falls to decrease the heat conductivity of said space, and whereby said medium at rising room temperature gives up adsorbed gas which flows into said space to increase its conductivity.

1,894,674. PORTABLE COOLING APPARATUS. William F. Dietrichson, Webster Groves, Mo., assignor to American Car and Foundry Co., New York, N. Y., a Corporation of New Jersey. Filed July 10, 1930. Serial No. 467,043. 8 Claims. (Cl. 62—91.5.)

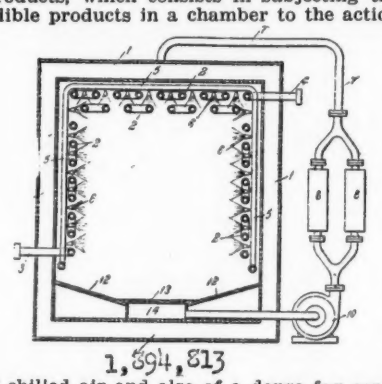
7. A portable cooling unit comprising a cabinet having a top, a closed container holding solid carbon dioxide arranged within the cabinet and depending from the top thereof, the connection of said cabinet with said top being insulated, insulation around the upper portion only of the container, the remaining portions of the container being exposed and free from connection with the cabinet whereby conduction of heat to the container is prevented, and air inlet and outlet means formed in the upper and lower portions, respectively, of the cabinet.

1,894,771. PISTON. Romuald Karasinski, Cleveland, Ohio, assignor to The Guardian Trust Co., Cleveland, Ohio, a Corporation of Ohio. Filed April 16, 1927. Serial No. 184,224. 6 Claims. (Cl. 74—109.)

1. In a piston, packing means therefor including a thin circumferentially extensible sheet metal cylinder wall engaging ring, a piston body, and means to secure said ring on a head portion thereof, and expanding means therefor including an inherently resilient disk of sheet metal, and means for securing said disk by an intermediate portion to said piston head effecting deformation of said ring to communicate outwardly directed pressure against annular longitudinally intermediate portions of said ring.

1,894,813. MEANS AND METHOD FOR CHILLING AND FREEZING FOODSTUFFS. Mikail Trofim Zarotschenzeff, London, England, assignor to American "Z" Corp., New York, N. Y., a Corporation of New York. Filed Feb. 17, 1931, Serial No. 516,441, and in Great Britain July 15, 1930. 5 Claims. (Cl. 62—104.)

4. A method for refrigerating edible products, which consists in subjecting the edible products in a chamber to the action of chilled air and also of a dense fog comprising a medium of low temperature and withdrawing from the air and dense fog in the chamber of heat absorbed from the edible products as they are being frozen.



1,894,813

1,894,864. AIR HUMIDIFIER AND WASHER. Hugh M. Hall, Eaton Rapids, Mich., assignor of one-half to Charles L. Sprinkle, Lansing, Mich. Filed Nov. 2, 1928. Serial No. 316,826. 9 Claims. (Cl. 261—91.)

1. In a humidifier, a casing, means within the casing to convert water into mist, comprising a well adapted to contain water, a funnel in the well, means for rotating the funnel to raise the water, a water breaker carried by the funnel and stationary flat baffles adjacent the funnel and adapted to further break up the water received from the water breaker, and round baffles surrounding the flat baffles.

1,894,892. CARBON-DIOXIDE ICE MACHINE. Norman M. Small, Waynesboro, Pa., assignor to Frick Co., Waynesboro, Pa., a Corporation of Pennsylvania. Filed Nov. 25, 1930. Serial No. 498,138. 9 Claims. (Cl. 62—121.)

1. A machine for making carbon dioxide ice comprising a cylinder, an ice making chamber positioned within said cylinder, a relatively large tube extending into said chamber, an expansion nozzle extending into said tube, a plate covering one end of the ice making chamber, and means for holding said plate on said chamber by fluid pressure, and a piston movable in said chamber for compressing carbon dioxide into solid form in said chamber, said piston being movable on the compression stroke by an operating piston rod and returned by gravity, substantially as set forth.

1,894,893. APPARATUS FOR ABSORBING AQUEOUS VAPORS BY MEANS OF A HYGROSCOPIC LIQUID SUCH AS SULPHURIC ACID IN A VACUUM. Peter Schlumbohm, Berlin, Germany. Filed Oct. 3, 1930, Serial No. 486,218, and in Germany Oct. 8, 1929. 11 Claims. (Cl. 62—153.)

1. A device for absorping aqueous vapors by means of a hygroscopic liquid such as sulphuric acid in a vacuum which comprises an absorber and a water-jet vacuum pump adapted to eliminate the spent acid from the absorber, and a trap of spent acid for shutting off the domain of the water-vapor pressure of the pump with relation to the domains of the water-vapor pressure in the absorber.

1,894,897. ICE TRAY. Guy L. Tinkham, Detroit, Mich., assignor to General Utilities Mfg. Co., Detroit, Mich., a Corporation of Delaware. Filed June 29, 1931. Serial No. 547,473. 16 Claims. (Cl. 62—108.5.)

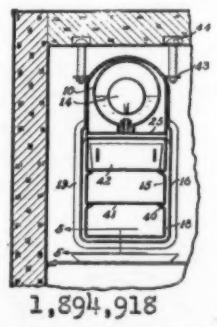
1. The method of producing ice or like cubes or units, consisting in freezing the cubes in connected mass form in a container having division points for severance of the cubes, and then fracturing the mass into the cubes at the scoring by flexing the container at the scoring.

1,894,898. HUMIDIFIER. Reuben N. Trane, La Crosse, Wis. Filed Nov. 8, 1928. Serial No. 318,000. 6 Claims. (Cl. 261—104.)

1. In a humidifier adapted to be secured in a casing above a radiator having air fins, parallel elongated water pans mounted on the side of said radiator, a cover to the water pan with apertures therein, wicking sheets and wicking legs mounted in the same planes as the radiator fins, said wicking sheets and legs being maintained in the same planes as the radiator fins by inserting the wicking legs into the water pans through the apertures in the water pan covers.

1,894,918. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 30, 1928. Serial No. 281,607. 10 Claims. (Cl. 62—126.)

6. An evaporator for refrigerating apparatus comprising in combination sheet metal walls forming an enclosure for ice-making receptacles, the walls including a pair of sheets spaced apart to provide a chamber for receiving refrigerant, a tank forming a reservoir for liquid refrigerant disposed within the enclosure and detachably connected to the chamber.



1,894,918

LIVERSIDGE SPEAKS TO MANUFACTURERS

NEW YORK CITY—Now is the time for electrical manufacturers to make a cooperative effort toward promotion of sales among ultimate consumers, said H. P. Liversidge, vice president of the Philadelphia Electric Co., in an address made during the convention of the National Electrical Manufacturers Association Jan. 16-17.

Too much of the industry's sales promotion effort is so planned that it becomes ineffective before reaching the prospective buyer, he declared, and too much money is spent in competition within the industry.

He pointed out that the domestic market should receive more attention, and showed how collective action by merchandisers and utilities in the Philadelphia area during 1932 increased electric refrigerator sales 1 per cent in dollar volume, and 7.5 per cent in number of units, as compared with a 40 per cent decrease in national sales during the same period.

In another address, J. S. Tritle, vice president of Westinghouse Electric & Mfg. Co. and new Nema president, said that the electrical industry is the logical one to take the lead in hastening business recovery.

The speaker called for vigorous and cooperative effort and declared that Nema was the forum in which to work out the plans and methods for recovery. It not only must continue its work on standardization, guidance against injurious legislation, and compilation of control statistics, but it must also add a greater amount of commercial work, for the final purpose of the industry is to get a greater use of electric products and services.

What is needed, the speaker declared, is a survey of the wants of the people and action to supply them. He pointed out that the electrical industry can take the lead in raising living standards and will profit by doing it.

30 NEW DEALERS JOIN LEONARD ORGANIZATION

DETROIT—Addition of 30 new dealers to the field organization of the Leonard Refrigerator Co. was announced by R. I. Petrie, general sales manager of the company. Fourteen states are represented in the list of appointments.

appointments which follows:

Massachusetts—Haymarket Furniture Co., Boston; Maverick Square Radio Co., East Boston; Kammler Music Co. and Ditmar Electric Co., both of Brookline; and the Edwards Co., Southbridge.

Vermont—Dunn Electric Shop, Brandon.

Connecticut—Dube Electric Supply Co., New Milford.

New York—Charles Festino, Cohoes; Community Service Corp., Mt. Kisco; John M. Kibler, Buffalo; Severance & Jones, Gouveneur; Harold B. Schotte, Amsterdam; and Harrett A. Vincent, Ravena.

New Jersey—Kramer & Co., Union City; and Pacific Radio Store, Newark.

Pennsylvania—Jacobson and Gordon, Homestead.

Virginia—Meyers and Tabakin, Norfolk.

Oklahoma—W. P. Bartlett and Son, Gassaway; Palace Furniture Co., Clarksburg; Freed Furniture Co., Tulsa; and Brandon Drug Store, Shidler.

Michigan—Bay City Radio Store, Bay City; Kessel and Rummel, Saginaw; Jager Asmus Hardware Co., Wyandotte; and Bad Axe Auto Co., Bad Axe.

Kentucky—Al Schipper, Newport; and W. J. Kloeker, Covington.

Illinois—Barker, Inc., Springfield.

Missouri — Maplewood Leonard Co., Maplewood.

Arkansas—Lloyd M. Myers, Forrest City.

MARSHALL FIELD ELECTED WESTINGHOUSE DIRECTOR

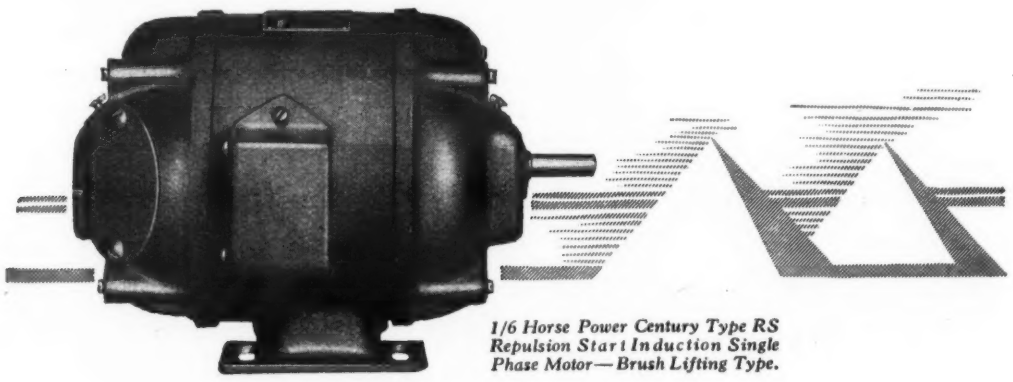
EAST PITTSBURGH, Pa.—Marshall Field, III, prominent New York City capitalist, has recently been elected to the board of directors of the Westinghouse Electric & Mfg. Co.

Mr. Field is a partner of the investment banking firm of Field, Glore & Co. of New York City.

He is a director of the following corporations: American Light & Traction Co., American & Continental Corp., Bank of the Manhattan Co., Columbia Gas & Electric Co., Chicago & Northwestern Railway Co., Chicago, St. Paul, Minneapolis & Omaha Railway Co., Continental Insurance Co., Marshall Field & Co., Guaranty Trust Co. of New York, Continental Illinois National Bank & Trust Co., Italian Superpower Corp., Libbey-Owens-Ford Glass Co., The Owens-Illinois Glass Co., Ulen & Co., and United Light & Power Corp.

POTTER REFRIGERATOR LINE SHOWN IN BUFFALO

BUFFALO—The only display in the thirty-first annual automobile show here not incorporating automobiles or kindred lines was that containing Potter refrigerators, according to T. J. Gardner, president of A. R. Weber, Inc., Potter distributor.



1/6 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor—Brush Lifting Type.

Meeting the Tests of Time!

In all parts of the world, in all classes of service, under all operating conditions Century Single Phase Motors have always met these tests:

1 The *rigid inspection tests* of your designing engineers.

2 The *operating tests* of your motorized equipment before it is sold.

3 The *sales tests* of your distributors, dealers and salesmen.

4 The *satisfaction tests* of users of Century driven equipment.

5 The *tests of time* . . . 1903—1933.

Investigate thoroughly the profit advantages of Century Motors—they will meet *your* tests and *your* requirements. Century Engineers will extend every help to assure the proper selection and application of motors to your product.

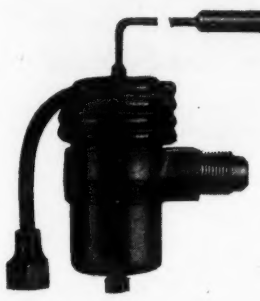
Century MOTORS

CENTURY ELECTRIC COMPANY · 1806 PINE ST. · ST. LOUIS, MO.
Offices and Stock Points in Principal Cities

RS-2-1/6

ALTERNATING AND DIRECT CURRENT, SINGLE PHASE, POLYPHASE, SPLIT PHASE, MULTISPEED AND SPECIAL MOTORS, RANGING IN SIZE—DEPENDING ON TYPE—FROM 1/60 TO 600 H.P. —GENERATORS—MOTOR GENERATOR SETS—ACTODECTORS—BATTERY CHARGERS, FANS, ETC.

BUYER'S GUIDE



***The* PEERLESS THERMAL EXPANSION VALVE**
(Pat. No. 1870090, Others Pending)

For use with Methyl Chloride and Sulphur Dioxide

The perfect thermostatic valve. The control always resides in the bulb due to the patented Peerless warming method. The PEERLESS will eliminate your expansion valve troubles.

List Price, $13.50. Write for bulletin.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

A NEW FIN COIL *by* PEERLESS

Wedge-locked and edge-locked aluminum fins on tinned copper tubing for methyl chloride, sulphur dioxide, F-12, etc.,—aluminum tubing for ammonia.
Absolute Metal to Metal Contact.
A Superior Coil in which Soldered Return Bends have been eliminated.
Priced to meet 1933 conditions.
Write—Wire for Catalog.

PEERLESS ICE MACHINE CO., 515 W. 35th St., Chicago, Ill.

Completely assembled and individually bagged. Ready for shipment in your refrigerator. Write for complete list of standard sizes and prices.

Hoosier *Standardized* **Parts**
HOOSIER LAMP & STAMPING COMPANY, EVANSVILLE, IND.

REFRIGERATION SUPPLIES

We carry a complete stock of

EVERYTHING IN REFRIGERATION

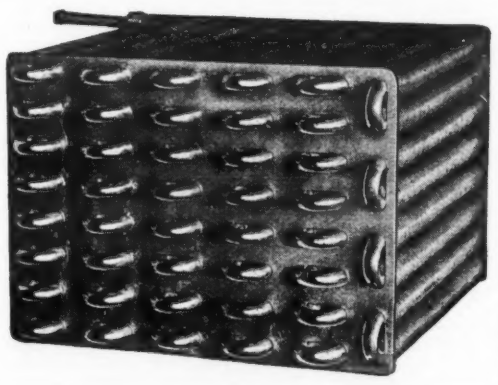
including

JARROW DOOR GASKET MATERIAL

Save time, work and expense by buying everything from one source

MELCHIOR, ARMSTRONG, DESSAU CO.
116 Broad St., New York **1135 Callowhill St., Philadelphia**

ROME EVAPORATORS



Highest Efficiency With Smallest Number of Joints

Rome-Turney Radiator Co.
Rome, N.Y.

Makers of Rome Condensers and Helical Finned Tubing

Do You Want Something Else to Sell?

Home owners are increasingly conscious of the advantages of clean, fresh air in kitchen, bath and other rooms of the house. There is a big market for MOTOVENT, the electric home ventilator. Fits any window—easy to install—beautiful in appearance.

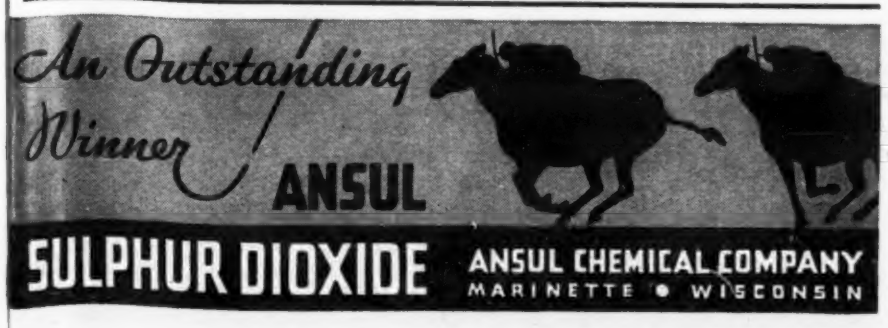
Models to retail at 29.50 to 49.50. Attractive margins to distributors and dealers. Write for full details.

M O T O V E N T
FRED'K N. ROSS, Inc. **1010 Beaubien St., Detroit**

MILK COOLERS FOR FARMS

A Moderate Priced—Quick Cooling—Low Operating Cost
Complete Unit or Cooling Coils Furnished Separately
All Small Refrigeration Accessories
Tools - Fittings - Copper - Controls, etc.

ICELESS REFRIGERATION ACCESSORIES COMPANY
2401 Chestnut Street **Philadelphia, Penna.**
Sales Agent for
L. SAHA CO., Inc.
Local Territory Open for Responsible Organization



QUESTIONS

Saturation Point

No. 1056 (Department Store, New Jersey)—"Will you kindly forward the national figures on the saturation point of electric refrigerators, if possible breaking the figures down into the different earning units — those whose salaries are two, three, four, and five thousand dollars a year."

Answer—At the beginning of 1932 our figures indicated a saturation of 17.3 per cent of wired homes in the United States. We have not arrived at a final estimate of saturation as of Jan. 1, 1933, but it is approximately 20 per cent.

We have no analysis of refrigeration users according to income classes. There is no feasible method by which this information could be obtained nationally, and such sampling as has been done is not adequate as a basis for estimating national averages.

Replacement Parts

No. 1057 (Service Station, Ohio)—"Can you furnish us names and addresses of companies supplying replacement parts for the popular makes of electric refrigerators?"

Answer—See page 341 of the REFRIGERATION DIRECTORY and MARKET DATA BOOK.

Line of Soda Fountains

No. 1058 (Refrigeration Distributor, Italy)—"Please send us a list of soda fountain manufacturers which would be willing to give us the sole franchise for their products in Sicily and southern Italy. Along with their instructions, they should also send us their catalogs, price lists for export, indicating the shipping weight of the various counters.

"For your information, we want the names of companies that rank with the Bastian Blessing Co. and Russ Mfg. Co., both of which are already represented here.

"The company wishing to give us their franchise should specify the types of Kelvinator compressors that may be used with their fountains, as well as furnishing complete instructions for assembling."

Answer—See page 359 of the REFRIGERATION DIRECTORY and MARKET DATA BOOK.

Interior Electric Lights

No. 1059 (Distributor, Ohio)—"Can you give the names of companies making electric lights for refrigerator interiors, similar to those employed by the Leonard Refrigerator Co.?"

Answer—M. M. Fleron & Son, Inc., Trenton, N. J.

Service Stations

No. 1060 (Manufacturer, Chicago)—"If an up-to-date list of service and installation organizations is available, particularly of those in the West, Northwest, and Rocky Mountain states, we will appreciate receiving several copies of it.

"We are working on a deal which would require the installation of several thousand refrigerators in those states, and it is necessary that some organization be available to service and install the units if, as, and when the order is placed."

Answer—See the Jan. 25 issue of ELECTRIC REFRIGERATION NEWS which contained a directory of 927 independent service companies, arranged geographically.

Ilg Electric Refrigerator

No. 1061—"Will you kindly send me details and specifications of the Ilg electric refrigerator. I understand that it is manufactured by the Western Electric Co."

Answer—Ilg Electric Ventilating Co., 2850 N. Crawford Ave., Chicago, Ill., is the manufacturer. The Ilg refrigerator is sold by several branches of the Graybar Electric Co., formerly a part of the Western Electric Co.

Garlock Gaskets

No. 1062 (Manufacturer, Vermont)—"Can you advise us where we can buy Garlock gasket material?"

Answer—Garlock Packing Co., 250 Main St., Palmyra, N. Y.

Oil-Burning Refrigerators

No. 1063 (Dealer, Indiana)—"Most of my refrigerator selling territory is in the rural district. I would like to get in touch with companies making oil-burning refrigerators such as Montgomery Ward advertises in its catalog. I haven't noticed any advertisements of such refrigerators in ELECTRIC REFRIGERATION NEWS, hence I must write direct to you for information."

Answer—Gibson Electric Refrigerator Corp., Greenville, Mich., and Perfection Stove Co., 7609 Platt Ave., Cleveland, Ohio, manufacture oil-burning refrigerators.

HAWAII DISTRIBUTOR MOVES

HONOLULU—Kelvinator Sales, Hawaii, territorial distributor for Kelvinator Corp., has moved to new quarters in the Galen building in this city.

N. Y. Distributor for Gibson, Majestic Organizes

NEW YORK CITY—Erb Electrical Supply Co., which will carry a complete line of electrical appliances including Gibson and Majestic refrigerators, has been organized here by former employes of the Morrison Electrical Supply Co. The new company will occupy the former Morrison premises.

R. J. Vogel is president of the new organization; A. G. Erb, treasurer; M. J. Ganze, secretary and sales manager; and Jim Griffiths, assistant sales manager.

A staff of outside salesmen will cover the Metropolitan New York territory, calling on electrical dealers, hardware, department, and house furnishing stores. The present staff of salesmen consists of D. J. McGrath, A. Smith, and J. Mahaffey.

LISTENWALTER & GOUGH DISTRIBUTES KELVINATOR

LOS ANGELES—Listenwalter & Gough has been appointed representative of Kelvinator Corp. in Southern California.

The new California distributing organization for Kelvinator has approximately 200 dealer outlets in the southern part of the state and an organization of 16 field men. The company has its own building in the Los Angeles wholesale district.

An immediate commercial campaign is planned by the new company, Philip G. Gough, president, announced. The company will handle both domestic and commercial products of Kelvinator Corp.

Officers of the distributorship are: Philip G. Gough, president; W. H. Kaemper, vice president; E. J. Field, secretary; F. E. Karsten, treasurer; and George E. Robertson, general manager.

ANCHOR LITE APPLIANCE CO. MOVES TO NEW STORE

PITTSBURGH—The Anchor Lite Appliance Co., wholesale distributor of Crosley refrigerators, Crosley radios, American Beauty washers, RCA Radiotron tubes, Vacuette electric sweepers, Sunbeam appliances, and other radio and electrical lines, formerly located at 330-332 Boulevard of the Allies, has moved into new quarters at 957 Liberty Ave. here, according to H. W. Goldstein, president and general manager of the company.

The new location affords 11,000 sq. ft. of floor space, states Goldstein. The company was organized more than 14 years ago.

MALONEY MADE OFFICER OF G. E. DISTRIBUTORSHIP

BOSTON—Joseph P. Maloney has been appointed vice president in charge of retail sales of Gentsch & Thompson, Inc., General Electric distributor here, according to W. L. Thompson, president of the distributorship.

Mr. Maloney was graduated from the Harvard Business School in 1932. He attended the Cambridge Latin School, graduating from there in 1926, and Harvard College, where he obtained his bachelor of arts degree in 1930.

MAJESTIC REPRESENTATIVE IN EAST DIES

PHILADELPHIA—Louis E. Hilduser, eastern representative of the Grigsby-Grunow Co., manufacturer of Majestic radios and refrigerators, died at the age of 44 after a short illness at his home in Germantown, Pa., Jan. 6.

BOSTON FIRM APPOINTED MAJESTIC DISTRIBUTOR

BOSTON—Howe & Co., here, directed by Lee R. Howe, has been appointed distributor of Majestic refrigerators for the Grigsby-Grunow Co., in Rhode Island, eastern Massachusetts, and New Hampshire.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Bldg., Detroit, Mich.

PAYMENT in advance is required for advertising in this column.

POSITION AVAILABLE

OPENING for experienced wholesale salesman on straight commission basis, no drawing account. Complete line of household and commercial electric refrigeration. Old established manufacturing concern. Give refrigerator experience and full details in first letter. Box 544.

WANTED: Salesmen in each jobbing center for new line of commodities (not refrigeration products) to be marketed at low prices. Must be familiar with chain stores and department stores. Give references. Apply to Earle E. Merrett, 3212 Eaton Tower, Detroit, Mich.

POSITION WANTED

REFRIGERATION ENGINEER desires connection with a reliable concern. Well versed in design problems on all domestic and commercial refrigerating systems and installations. Highest recommendation with record of ten years. Box 540.

YOUR ability to handle a job requiring specialized experience, when presented in this column, will come to the attention of executives who are quietly searching for trained men who know the refrigeration business. Two dollars will deliver your message to all the important prospects for your proposition in the entire industry.

INDEPENDENT SERVICE

MANUFACTURERS are constantly inquiring for reliable local service organizations prepared to handle installation and maintenance work in communities not served by their regular distributors and dealers. Your business card in this column will bring this profitable business direct to you. Special low rates are now offered to independent service men. For only $10.00 you may carry a 4-line advertisement for three months. Ask for details. Address Electric Refrigeration News.

MISCELLANEOUS

SALESMEN—A brand new novelty that sells easily and fast. An automatic electric flashlight instantly attached in any refrigerator. Lights up when the door opens. No wiring—no installation cost. Sells for $1.50. W. C. Smith, Mt. Vernon, N. Y.

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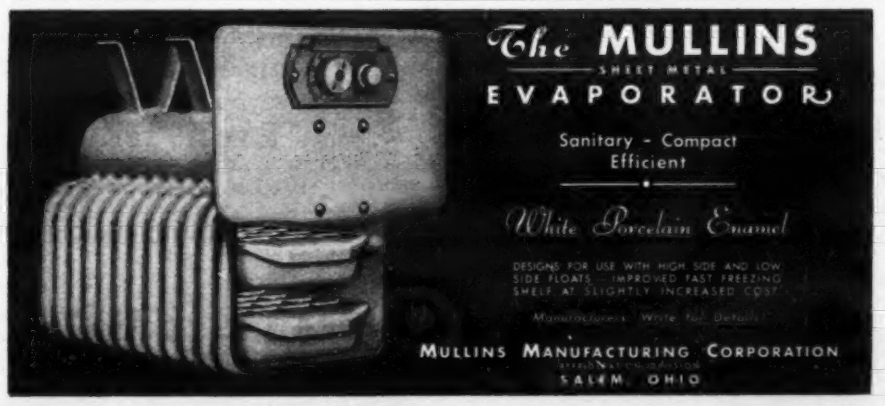
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